



MUSEUM OF VICTORIA



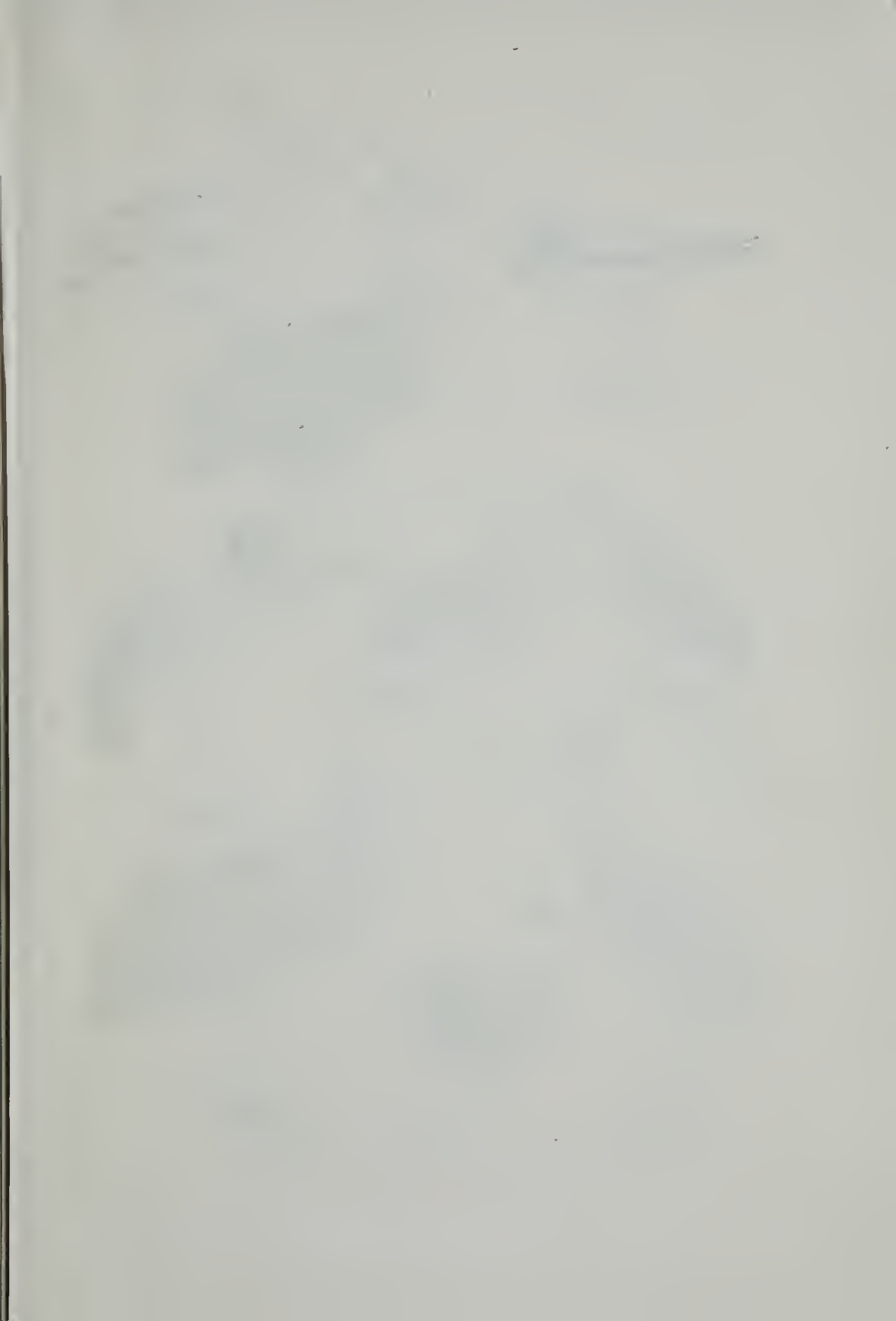
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WHAT BIRD IS THAT?







AUSTRALIA'S LARGEST BIRDS (EXCLUDING SEA-BIRDS)

WHAT BIRD IS THAT?

A GUIDE TO THE BIRDS OF AUSTRALIA

By

NEVILLE W. CAYLEY, F.R.Z.S.

Vice-President of the Royal Zoological Society of New South
Wales; Member of the British Ornithologists' Union and
Member of the Royal Australasian Ornithologists' Union

ILLUSTRATED BY THE AUTHOR



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TO MY FATHER

FOREWORD

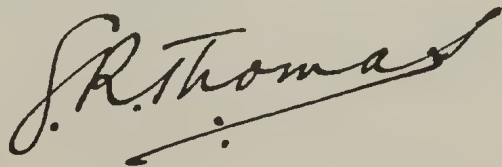
THE Gould League of Bird Lovers of New South Wales esteem it a privilege to sponsor *What Bird is That?* This book will be a permanent and beautiful memorial to the League's "coming of age," for the League was established on 22 October 1910, at Wellington, with Mr Walter Finigan and the late Mr Edward Webster as its foundation members. History was made that day!

The book will also have high educational and patriotic value: educational, in that all who so desire may become intimately acquainted with the many and beautiful native birds that throng our bushland; patriotic, that by virtue of such knowledge, love for our feathered friends may deepen and enrich love of country.

"What bird is that?" No question is more frequently on the lips of bush lovers. It may be occasioned by the bird on the wing, or on the tree in quiet contemplation, or by the lilt of a song. No question could be more spontaneous.

What Bird is That? is the most comprehensive and informative bird book published in the Commonwealth—if not in the world. The coloured plates are a triumph not only of the genius and imagination of the artist—our own Neville Cayley on whom has fallen so fittingly the mantle of his famous father—but also of the block-maker's and printer's art. The publishers have done nothing finer of its kind.

The life-like portrayals of our feathered friends, together with the succinct but compendious descriptive information, will place within easy reach of the bird lover, a most valuable *vade mecum* of bird and bush lore for out of doors as well as a thing of beauty for the library.

A handwritten signature in dark ink, reading "J. R. Thomas". The signature is written in a cursive style with a long, sweeping underline that extends to the right.

Department of Education,
Sydney.

PREFACE

THE purpose of this volume is to assist and encourage those nature-lovers who desire to gain a more intimate knowledge of our birds. No attempt has been made to arrange the species according to a technical classification. They have been, for the most part, grouped in habitats.

In planning the arrangement of the birds several factors in addition to habitat had to be considered—always having in view the simplest means of identification. Thus, it was deemed advisable to keep all the Parrots and Cockatoos together, regardless of habitat. Even a beginner recognizes a parrot, no matter what the species. Other well-known families are similarly treated.

The coloured reproductions of the drawings eliminate the necessity for colour descriptions of plumage. With the exception of the Eyrean Grass-wren, all the drawings were made from specimens in museums or in private collections. In most cases, the figures of indigenous species are from birds taken in type localities.

It has been the good fortune of the author to ramble over much of this interesting country of ours, and in so doing, to acquire useful field knowledge concerning some hundreds of species. This, together with information he has gathered from standard works and other sources, is given in a condensed form.

The author owes a special debt of gratitude to Mr Keith A. Hindwood, R.A.O.U., Hon. Ornithologist to the Australian Museum, Sydney, for his untiring help throughout the production of the work. He is also grateful for co-operation and assistance to Mr P. A. Gilbert, a past Chairman of the Ornithological Section of the Royal Zoological Society of New South Wales; to Mr Tom Iredale, F.R.Z.S., Chairman of the Ornithological Section of the Royal Zoological Society of New South Wales; to Mr A. F. Basset Hull, F.R.Z.S., Editor of the *Australian Zoologist*, a past President of the Linnean Society of New South Wales, the Royal Zoological Society of New South Wales, and the Royal Australasian Ornithologists' Union; to Mr Charles Bryant, R.A.O.U., Editor of the *Emu*; to Dr W. D. K. MacGillivray, C.F.A.O.U., a past President of the Royal Australasian Ornithologists' Union; to Miss Doris Chadwick, B.A., Editress, School Magazine; and to Mr W. W. Froggatt, F.R.Z.S., President of the Naturalists' Society of New South Wales, a past President of the Linnean Society of New South Wales, and the Royal Zoological Society of New South Wales.

He also wishes to thank the President and Members of Council of the

Gould League of Bird Lovers of New South Wales for kindly sponsoring the work; the Trustees of the Australian Museum, Sydney, the National Museum, Melbourne, the Adelaide Museum, and the Brisbane Museum, for the loan of specimens in their collections; and the members of their respective staffs for personal help willingly rendered.

In preparing this work the following publications have been consulted: Gould (John), *The Birds of Australia*, 7 vols., 1840-1848, and *Supplement*, 1869; Gould (John), *Handbook to the Birds of Australia*, 2 vols., 1865; Hall (Robert), *A Key to the Birds of Australia and Tasmania*, 1899; Campbell (A. J.), *Nests and Eggs of Australian Birds*, 1901; North (A. J.), *Nests and Eggs of Birds found Breeding in Australia and Tasmania*, 4 vols., 1901-1914; Mathews (Gregory M.), *The Birds of Australia*, 12 vols., 1910-1927; Mathews and Iredale, *A Manual of the Birds of Australia*, vol. i, 1921; Leach (J. A.), *An Australian Bird Book*, seventh edition, 1929; Alexander (W. B.), *Birds of the Ocean*, 1928; *The Official Checklist of the Birds of Australia*, second edition, 1926 (issued by the Royal Australian Ornithologists' Union); and the *Emu* (Official Journal of the Royal Ornithologists' Union).

Bacon & Co. Ltd have made the engravings, and Halstead Press Pty Ltd have printed them with their accustomed skill and care.

N. W. C.

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THE GOULD LEAGUE OF BIRD LOVERS OF NEW SOUTH WALES

"Education is more potent than legislation in the matter of bird preservation."

—*The League's Watchword.*

TWENTY-ONE years ago two men stood talking in the playground of the Public School at Wellington. They were visionaries with the faith of visionaries.

The younger showed the other a membership certificate of the Victorian Gould League of Bird Lovers. The elder said: "We will send this movement through the schools of New South Wales!" The speaker was Edward Webster the Head Master: the other was Walter Finigan his assistant. Boastful words! But those two visionaries had the faith that can move more than mountains.

How was it to be done? Almost at once a companion spirit, with an intense love of nature, was found in their Chief Inspector—James Dawson, M.A.—and he was soon to be in Wellington.

On the Saturday morning, 22 October 1910, following Mr Dawson's visit, a meeting was held and the following resolution was carried:

That an Association be formed known as the New South Wales Gould League of Bird Lovers; that those interested enrol themselves as members and form a provisional committee with power to add; that a provisional subscription of 1s. be paid by those joining for the purpose of defraying cost of stationery and postage; that Messrs Morgan, Finigan, and the mover (E. Webster) be elected as provisional executive for the purpose of propaganda; and that Mr Finigan be secretary *pro tem*.

Thus, the first branch of the Gould League of Bird Lovers of New South Wales, with a membership of twenty-three, was formed in that country town. The Chief Inspector of Schools was asked to become President and before the end of the year Bird Day was established in the schools of the Wellington district.

Later, at a meeting in the Sydney Girls' High School, on Wednesday, 21 December 1910, the League was established as a State organization with Mr James Dawson as President. Its objects were declared to be:

1. To protect all birds except those that are noxious.
2. To prevent the unnecessary collection of wild birds' eggs.
3. To disseminate knowledge regarding our birds and to help members, teachers, and others to identify them.
4. To secure the general use of one common name for each bird.

5. To cultivate a more friendly attitude towards birds by fostering an intelligent interest in them and their habits.
6. To encourage the formation of bird sanctuaries.

Rules were compiled, a scheme of work outlined, and a certificate was designed and issued to members. This certificate, tinted in green and illustrated with drawings of birds, bore the following Bird Lover's Pledge to be signed by members:

"I hereby promise to protect all birds except those that are noxious, and to refrain from the unnecessary collection of wild birds' eggs."

Since then the League has spread and flourished, till to-day it is one of the powers for good in the land, with a membership of six hundred thousand. Bird Day has become one of our annual red-letter days. Literary competitions and Bird-call competitions express and keep alive the interest and enthusiasm of members.

Planted in a country school, the Gould League's roots have spread to every school in the State, and from those schools and the idealism of their teachers, mainly, the Gould League has drawn its inspiration and its strength. A Bird-life Supplement to the *Education Gazette*, containing bird photographs and information on the study of bird-life, was issued in October 1911 to celebrate Bird Day; and that good work has been continued from year to year. No finer thing has come out of our schools than this league of Bird Lovers.

Among those whom the League delight to honour three especially are acclaimed; the young idealist who sowed the seed, the older idealist who with him nurtured the young plant, and another whose care for it in later years has been rewarded by a tree in whose branches the birds of our land flourish in comparative peace and safety.

One takes off one's hat to Walter Finigan, Edward Webster, and Harold Wynne Hamilton.

INTRODUCTION

BIRDS express all that is beautiful, joyous, and free in nature. They delight our eyes, charm our ears, quicken our imagination, and through association with the bushland inspire us with a profound love of country.

What visions of freedom and joy come to us when we see a flock of Scarlet Honey-eaters feeding among the blossoms of a tea-tree; a Spinebill sipping nectar from a native fuchsia; a Blue Wren moving among the golden beauty of a wattle-tree; or Silver Gulls flying lazily above the limpid blue waters of our harbours? What pleasure is ours when we hear the joyous carefree carolling of Magpies at dawn; the springtime song of the Grey Thrush; the wonderful song mimicry of the Lyrebird, or a Song-lark soaring heavenwards filling the air with its melody.

Nature study has developed enormously during the past few years, more particularly that branch devoted to birds.

The idea is gradually being discarded, that, to study birds one had to make a collection of skins or eggs. Nowadays the camera has displaced the gun, and the photographic album, the skin and egg cabinet. The collection and preservation of specimens is essential to a complete knowledge of birds, as one must handle a definite object before its structure and colour can be studied correctly. This material is always available to students in museums—being placed there for that purpose. Students are therefore advised to visit these institutions, where every facility is offered for the study of species observed in the field.

There is an art in studying birds in the field. For instance, observations will be more successful in the early morning or towards evening, than if made during the midday period. In the morning birds are particularly active searching for food after the night's rest: towards evening they are again active seeking food and roosting-sites.

Birds may be found in almost any type of country; rain forests and open forests, however, offer the greatest variety. There they may be observed on the ground, on the tree-trunks, or among the foliage, favoured haunts being the borders of more open areas of the scrub. In the denser parts they are difficult to observe, as they keep to the upper outer foliage of the tall trees. Heath-lands also offer a wealth of bird-life. Here an observer's task is considerably lightened by the open nature of the vegetation. Belts of timber on the margins of streams, and isolated clumps of trees dotted over plains or cleared areas will amply repay investigation. Birds of the swamps and reed-beds are habitually shy and test the observer's patience and ingenuity.

The bird-student is advised to keep detailed lists of the birds of his locality or other areas he may be in the habit of visiting. These special districts will, of course, be divided into habitats. Thus he is enabled to

group the species according to their environment—an important rule. Such record of observations spread over several years will give a good indication of the movements of the different species; and when used in conjunction with records from other districts will be of great assistance in determining the distribution of species throughout the year.

The first essential of any up-to-date field-observer's equipment is a pair of good field-glasses, by their means he is able to bring within close range even the most timid birds.

A pocket-book is another necessity. Field-notes should include date and locality, feeding-habits, call-notes or song, composition and situation of nest, descriptions of eggs and number in clutch, and plumage of fledgelings (as well as the various changes to adult plumage). These particulars should be recorded "on the spot" and later transferred to a loose-leaf book, or to folders devoted to the particular species.

The observer should remember that drab-coloured clothing is much more inconspicuous in the field than bright or light-coloured, and has a less disturbing effect on birds. Nests out of reach may be investigated with the aid of a mirror tilted and affixed to the end of a long stick. A mirror is also useful in reflecting light into dark holes and similar places used as nesting-sites.

A brief description of the habitats mentioned in the text may be useful.

Brushes and Big Scrubs. Dense vegetation of the rain-forest type; generally very tall trees with luxuriant top foliage, creepers, palms, and abundant undergrowth, particularly along the watercourses and near the borders. Interspersed are true rain-forest zones restricted to moist gullies and regions of a higher rainfall. Known as "scrub" in Queensland, and "brush" and "big scrub" in New South Wales.

Open Forest. An even growth of tall trees with a scanty undergrowth except along the creeks and watercourses or the sides of hills.

Scrub-lands. Consist of Mallee and Marlock (dwarf *Eucalypts*), Mulga, Myall, Gidgea, Pindum, Brigalow, Belah, Wilga, Dead Finish (*Acacias*), Pine (*Callitris*), and She-oak (*Casuarina*) scrubs of the dry inland or semi-desert areas.

Heath-lands. Areas consisting of the flat tops of hills or gently sloping plateaux with a stunted and semi-drought-resisting vegetation, mostly about two to six feet in height.

Open country. Includes plains, desert, and semi-desert areas. Plains are chiefly associated with Mitchell (*Astrelba*) and Flinders (*Iseilema*) grasses; desert areas with spinifex, porcupine, and cane grasses (*Triodia*); and semi-desert areas with salt-bush (*Atriplex*), blue-bush, and cotton-bush (*Kochia*).

Plan of the Book.

Divisions. Instead of chapters, the species are arranged under four main divisions: *Forest-frequenting Birds*; *Birds of the Heath-lands and*

Open Country; Birds of the Lakes, Streams, and Swamps; and Birds of the Ocean and Shore. These divisions have been subdivided into groups, such as *Birds of the Brushes and Big Scrubs, Birds of the Open Forest*, and so on. A full list of these groups is shown in the list of plates.

Coloured plates. Each coloured plate is accompanied by the letterpress relating to the species figured on that plate, the numbers coinciding. Photographs illustrating typical habitats are also included.

Measurements. The size-key on each plate indicates the sizes of the birds in proportion to their life-size.

Scientific names. The scientific names used are those accepted by the Royal Australasian Ornithologists' Union and published in the *Official Checklist of the Birds of Australia* (2nd edition, 1926). This is the nomenclature generally used by Australian ornithologists.

Pronunciation. Guidance to the pronunciation of scientific names: The mark ' indicates the syllable to be accented. The marks - and ~ over vowels show their quantity; that is, whether they are long or short. Diphthongs are always long. The pronunciation here indicated is the English, not the "continental" or "Roman" pronunciation of Latin.

Pronounce

ā as in fate; ä as in fat;
ē as in Peter; ě as in pet;
ī as in site; ĭ as in sit;
ō as in note; ǒ as in not;
ū as in cute; ŭ as in cut;
au as in audience;
æ and œ as ě; ai as ī;
c (soft) as s before e, i, and y;
c (hard) as k before a, o, and u;
ch as k.

Vowels not marked are short.

Derivation. The derivations of the generic and specific names are based on the investigations of the late H. Wolstenholme, whose researches in this province appear in an appendix to the *Checklist*. Mr Wolstenholme was unable to find the origin of some Australian generic names. When the originator leaves no reason for the name he has chosen, it is impossible always to know what was in his mind to suggest that name.

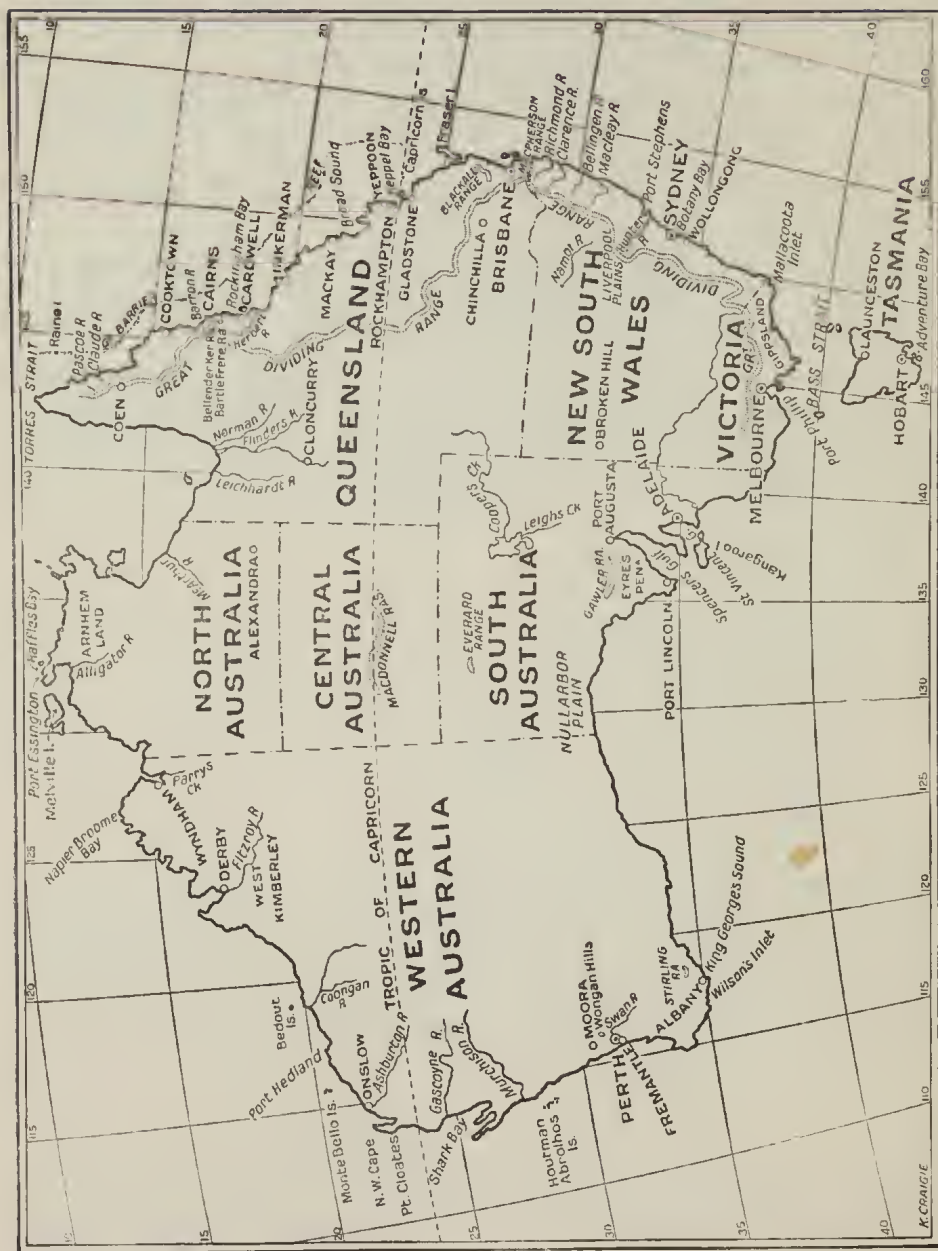
Abbreviations. Gk = Greek

L. = Latin

N.L. = New Latin (a latinized form of a word from another language).

Vernacular names. With few exceptions the common names used are those accepted and published in the *Checklist*. Common names other than those used in the *Checklist* are included, but their use should be discarded to avoid confusion.

Distribution. Except in some few instances where slight additions and amendments are made, the range distribution used is taken from the *Checklist*.



A REFERENCE MAP OF LOCALITIES
 Note.—Northern Territory referred to in the text embraces North Australia and Central Australia.

AUSTRALIA'S LARGEST BIRDS

PLATE I

AUSTRALIA'S LARGEST BIRDS

(Excluding Sea-birds)

1. Pied Goose *Anseranas semipalmata* Latham

An'-ser-an'-as—L., *anser*, goose; L., *anas*, *anatis*, duck: *semi-pal-mā'-ta*—L., *semi*, half; L., *palmatus*, webbed.

Distribution.—Northern, eastern, and southern Australia; casual to south-western Australia and Tasmania; also accidental to New Guinea.

Notes.—Also called Magpie Goose, Black-and-white Goose, and Semipalmated Goose. Usually in flocks, frequenting swamps, lagoons, mangrove flats, estuaries, lakes, and rivers. Generally seen searching for food in shallow water, or else perched on the branches of trees bordering swamps and watercourses. Food: aquatic plants and animals.

Nest.—A flat, sometimes bulky, structure, composed of rushes and herbage; placed on a trampled-down tussock of reeds. Generally the nesting-site is near the middle of a swamp.

Eggs.—Usually five to eight, occasionally as many as twelve or fourteen, creamy or dull yellowish-white, unless nest-stained. Breeding-season: varies according to the rainfall, January to March; July to December.

2. Pelican *Pelecanus conspicillatus* Temminck

Pel-e-cā'-nus—Gk, *pelecan*, pelican: *con-spic-ill-ā'-tus*—L., *conspicillatus*, spectacled.

Distribution.—Australia generally, and Tasmania; also occurs in Amboina and New Guinea, accidental to New Zealand.

Notes.—Usually in flocks, frequenting the estuaries of rivers, mud-flats of the coast and contiguous islands, or rivers and lakes of the inland areas. It is generally seen fishing in shallow water or at rest on a mud or sand-flat. Whereas it is thoroughly at home on the water or in the air, it has a waddling gait on land. Food: fish and salt- and fresh-water crustaceans.

Nest.—A depression in the ground surrounded by a collection of dead plant-stems, grasses, and sticks, gathered as incubation proceeds. It breeds in colonies, the nests being about a yard apart.

Eggs.—Two or three, dull white or dirty yellowish-white, often irregularly coated with lime, and usually nest-stained. Breeding season: September to March (eastern Australia and Tasmania).

3. Cassowary *Casuarius casuarius* Linné

Cas-u-ār'-i-us—N.L., *casuarius*, from Malay *casoar*.

Distribution.—North-eastern Queensland (Cardwell to the Pascoe River); also occurs in Ceram, the Aru Islands, and New Guinea.

Notes.—Usually singly, frequenting the dense scrubs. It is exceptionally wary and timid, keeping to the thickest parts of the scrubs during the day, venturing forth towards evening and at daybreak to visit its favourite feeding-trees. Its call-note is a series of prolonged, harsh, guttural croakings, quickly repeated, or a short but deep booming grunt. Food: native fruits, seeds, berries, and leaves.

Nest.—A bed of sticks, leaves, and such-like vegetable debris, about 3 feet in diameter; usually placed near the base of a large tree in dense scrub.

Eggs.—Three to five, light pea-green, the shell being coarse and granulated. Breeding-season: July to September.

4. Cape Barren Goose *Cereopsis novæ-hollandiæ* Latham

Cēr-e-ops'-is—L., *cera*, wax; Gk, *opsis*, appearance: *novæ-hollandiæ*—of New Holland.

Distribution.—Coastal southern Australia, Tasmania, and the islands of Bass Strait.

Notes.—Also called Pig Goose. Usually in pairs or small flocks, frequenting grass-lands and swampy areas. It is an extremely wary and timid species; unfortunately it is becoming rare. The name Pig Goose is due to its grunt-like notes. Food: grass and herbage.

Nest.—A large and rather flat structure, composed of dried grass and plants, and lined with down; placed on the ground.

Eggs.—Four to seven, creamy-white, the surface being highly polished. Breeding-season: June to September.

5. Bustard *Eupodotis australis* Gray

Eu-pod-ō'-tis—Gk, *eupous*, *eupodos*, having good feet; Gk, *otis*, *otidos*, bustard: *australis*—southern (Australian).

Distribution.—Australia generally.

Notes.—Also called Plain Turkey. Usually singly or in pairs, occasionally in small flocks, frequenting chiefly the inland plains. It is a wary bird, generally keeping to situations where it has an uninterrupted view of the surrounding country. Being a ground-dwelling and ground-breeding bird, it falls an easy prey to the introduced fox, but the man with a gun is its chief enemy. During the breeding-period the male displays in an extraordinary manner, and utters his peculiar call—a low, hollow roar, difficult to describe in words. Its food consists of large insects (chiefly grasshoppers, beetles, and crickets), grass, and green herbage; also fruits and berries of low-growing vegetation.

Nest.—None made; generally the eggs are laid on the bare ground, sheltered by tall grass or a low bush.

Eggs.—One or two, buff or greenish-buff, smudged or blotched all over with brown markings. Breeding-season: January to April; June and July (northern Queensland); September to November (New South Wales).

6. Jabiru *Xenorhynchus asiaticus* Latham

Xen-o-rhynch'-us—Gk, *xenos*, strange; Gk, *rhynchos*, beak: *asiaticus*—Asiatic.

Distribution.—Northern and eastern Australia, from the Fitzroy River (north-western Australia) to north-eastern New South Wales; also occurs in India, Burma, the Malay Archipelago to New Guinea.

Notes.—Also called Black-necked Stork. Usually singly, in pairs, or family parties, frequenting swamps, salt-water creeks, and lagoons. It is generally seen stalking quietly about seeking its prey, every now and again jumping along with great strides and jabbing at fish with its huge bill. Food: fish, crabs, and carrion of all kinds.

Nest.—A large pile of sticks and twigs, on which a thin layer of grass or rushes is laid, placed on a low swamp tree, or in a tall tree.

Eggs.—Two to four, whitish unless nest-stained. Breeding-season: May and June (Northern Territory); March and April (Queensland).

7. Brolga *Megalornis rubicundus* Perry

Meg-al-orn'-is—Gk, *megas* (*megalos*), large; Gk, *ornis*, bird: *ru-bi-cun'-dus*—L., *rubicundus*, red.

Distribution.—Australia (except the south-western portion).

Notes.—Also called Native Companion and Australian Crane. Usually in pairs or flocks, frequenting plains and swampy areas. It is a permanent resident in some districts, nomadic in other localities. Its flight is easy and graceful and at times it soars to a great height. A flock will amuse itself by dancing, forming "quadrille parties" or "corroborees." All manner of movements are performed in a most graceful way. Its call is a deep trumpeting note. Food: insects, small rodents, frogs, and reptiles; also herbage and edible roots of various kinds.

Nest.—Usually none made, the eggs being laid on the ground; occasionally the eggs are rimmed around with pieces of reeds, plants, or grass. Sometimes it is a substantial platform of grass tussocks, reeds and similar material.

Eggs.—Two, glossy white, covered with a few purplish-red spots. Breeding-season: September to March.

8. Black Swan *Chenopsis atrata* Latham

Chēn'-op-is—Gk, *chen*, goose; Gk, *opsis*, appearance: *a-trā'-ta*—L., *atratus*, blackened.

Distribution.—Australia (except the extreme northern portions) and Tasmania; introduced into New Zealand.

Notes.—Usually in pairs or flocks, frequenting alike lakes, rivers, and swamps of the inland areas as well as similar situations in the coastal regions. It lives and breeds freely in parks and gardens. Its trumpet-like call as it flies from one feeding-ground to another, is well known to most bird lovers. These flights are mostly during the evening and more especially on moonlight nights. Its food consists of aquatic plants and animals.

Nest.—A large, open, thick-walled structure, composed of twigs, rushes, and aquatic plants; slightly lined inside with down. Generally placed in swamps and lakes, favourite sites being small islands of rushes and reeds surrounded by water—a protection against the fox.

Eggs.—Usually five or six, sometimes as many as eight or nine, pale green or dull greenish-white and slightly lustrous. Breeding-season: August to December.

9. Emu *Dromaius novæ-hollandiæ* Latham

Drom-ai'-us—Gk, *dromaios*, swift-footed: *novæ-hollandiæ*—of New Holland.

Distribution.—Australia generally; extinct in Tasmania, King Island, and Kangaroo Island.

Notes.—Usually in pairs or flocks, frequenting plains. Although once plentifully distributed over the continent, increasing settlement has driven it farther afield, and few people are privileged to see this bird in its wild state. Many pastoralists consider it a nuisance, as it fouls pasture-lands, but while it should be kept in check, it certainly should not be exterminated. During times of drought this bird suffers greatly, as it generally feeds on "green" grass and herbage. Caterpillars and grasshoppers are also eaten.

Nest.—Usually a flat bed or platform, composed of grass or other herbage trampled down on the ground. Nests are frequently in the open without much attempt at concealment. The male does most of the incubation.

Eggs.—Usually about nine, but varying from seven to eighteen, dark green, with a granulated surface. Breeding-season: April to November, or according to weather conditions.

FOREST-FREQUENTING BIRDS

PLATE II

BIRDS OF THE BRUSHES AND BIG SCRUBS

1. Lewin Honey-eater *Meliphaga lewini* Swainson

Mel-iph'-ag-a—Gk, *meli*, honey; Gk, *phagein*, to eat: *lewini*—John William Lewin, ornithologist and artist.

Distribution.—Eastern Australia, from Barron River (northern Queensland) to Victoria.

Notes.—Also called Yellow-eared Honey-eater and Banana-bird. Usually in pairs, frequenting the dense low scrubby trees; it is a fearless bird, allowing one to approach quite near without showing alarm. Its song is a feature of the brushes, being a succession of loud, ringing notes. Food: insects, pollen, and nectar; also native fruits and berries and cultivated fruits.

Nest.—A well-made, cup-shaped structure, composed of strips of bark, skeletons of leaves, moss, and spiders' egg-bags, held together with spiders' webs; warmly lined with dried grasses and plant down. Suspended by the rim to a thin forked horizontal limb of a thick foliated tree, at heights up to 20 feet from the ground.

Eggs.—Usually two, occasionally three, white, well spotted and blotched, chiefly at the larger end, with light to rich reddish-brown or purplish-black markings. Breeding-season: September to January.

2. Yellow-throated Scrub-wren *Sericornis lathamii* Stephens

Sēr-ic-orn'-is—Gk, *sericos*, silken; Gk, *ornis*, bird: *lathamii*—Dr John Latham (1740-1837), English ornithologist, who published, in 1801, the first important work on Australian birds.

Distribution.—Eastern Queensland to Victoria.

Notes.—Also called Devil-bird. Usually in pairs, searching for insect-life on the ground, on logs, or among fallen leaves and other debris. It is fearless in disposition, often approaching to within a few feet of the observer. It utters a rich, clear call-note, and is also an excellent mimic, imitating the calls and songs of the other birds with which it associates. Food: insects and their larvæ.

Nest.—A bulky, domed structure, with a slightly hooded entrance in the lower portion, composed of rootlets and skeletons of leaves, intermingled with mosses; lined with feathers. Attached near the end of a leafy pendulous branch of a tree, often overhanging water, at heights up to 20 feet or more from the ground.

Eggs.—Two or three, varying from almost pure white to pale chocolate-brown or chocolate-pink; generally they are lighter in colour on the smaller end, but some have slaty tinges in the ground colour, and almost invariably have clouded zones. Breeding-season: August to December.

3. Grey Whistler *Pachycephala griseiceps* Gray

Pach'-y-ceph'-al-a—Gk, *pachys*, thick; Gk, *cephale*, head: *gris'-e-i-ceps*—L., *griseus*, grey; *-ceps*, from L., *caput*, *itis*, head.

Distribution.—Northern Queensland, from Cape York to Rockingham Bay; also occurs in the Aru Islands and New Guinea.

Notes.—Usually in pairs, inhabiting the big scrubs, where it is mostly observed seeking insect-life in the outer foliage of the largest trees, or among the tangled vines. Its song is a loud, clear whistle, composed of from five to ten notes; also two short call-notes. Food: insects, mostly small beetles.

Nest.—A somewhat loosely made, cup-shaped structure, composed of fibre and dead leaves, interwoven with rootlets and tendrils; sparsely lined with dead grass and tendrils; on the outside are webs and castings of insects. Usually placed in the upright fork of a small sapling.

Eggs.—Usually two, white, well marked all over, particularly at the larger end, with spots of dark and light umber and purplish-grey, the latter appearing as if beneath the shell. Breeding-season: October.

4. Magnificent Rifle-bird *Ptiloris magnificus* Vieillot—4A. Female *Ptil'-o-ris*—Gk, *ptilon*, feather; Gk, *ris*, *rin*os = *rhis*, nose: *mag-nif'-i-cus*—L., *magnificus*, magnificent.

Distribution.—Northern Queensland, from Cape York to the Claudie River; also occurs in New Guinea.

Notes.—Usually in pairs, frequenting the big scrubs. It is similar in habits to the Paradise Rifle-bird; its call, however, is quite different, being a loud insistent whistle, following two sharp whistles. Food: chiefly native fruits; also insects.

Nest.—A loosely and scantily built, open, cup-shaped structure, composed of dead leaves, vine tendrils, and fibre; lined with vine tendrils and plant-fibre. Often placed in a pandanus palm, within 7 feet of the ground; sometimes built on top of a dead spout of a tree or similar situation, as high as 40 feet from the ground.

Eggs.—Two, creamy-white, beautifully marked with longitudinal streaks and spots of brownish-olive, rufous-brown, and slate, the long brush-like streaks becoming more numerous at the larger end. Breeding-season: October to early February; May.

5. Victoria Rifle-bird *Ptiloris victoriae* Gould—5A. Female *victoriae*—Queen Victoria.

Distribution.—Northern Queensland.

Notes.—Also called Lesser Rifle-bird. Usually in pairs, frequenting



BIRDS OF THE BRUSHES AND BIG SCRUBS

the big scrubs of the mainland and many islands off the coast. It is very similar in habits and call-notes to the Paradise Rifle-bird. Food: native fruits and insects.

Nest.—An open, cup-shaped structure, composed of dead leaves, vine tendrils, twigs, and portions of climbing plants; lined with fine twigs. Frequently pieces of the cast-off skin of a snake are used as decorations, these being worked into the outside materials of the structure. Usually secreted in a thick mass of vines or foliage, often near the top of a small tree in dense scrub.

Eggs.—Two, reddish flesh-colour, beautifully marked with longitudinal streaks and a few smudges or spots of red, purplish-red, reddish-violet, and purplish-grey, a number appearing as if beneath the shell. Breeding-season: (July to September), October to December.

6. Paradise Rifle-bird *Ptiloris paradisens* Swainson—6A. Female
par-a-dī-se-us—L., *paradisens*, of Paradise.

Distribution.—Central Queensland (Rockhampton) to central New South Wales (Hunter River).

Notes.—Usually in pairs, frequenting the big scrubs and brushes of the coast and contiguous mountain ranges. Each male bird appears to have his own special domain, an area about a quarter of a square mile in extent, over which he reigns; he rarely leaves his territory. The call is a harsh scream, "Y-a-a-ss," frequently uttered, especially during the mating season. The male "displays" in an extraordinary manner, usually selecting for his performance a bare horizontal limb of a tree at the edge of the scrub, or overlooking a gorge. This limb he visits regularly. Food: insects, mostly procured from under or in the crevices of the bark on tree-trunks; also native fruits and berries.

Nest.—A rather large, open, cup-shaped structure, composed of large brown dead leaves and vine tendrils, decorated with pieces of green climbing fern and portions of the cast-off skins of snakes; lined with wiry fern-stems and rootlets. Usually secreted in a dense mass of vines or foliage in the topmost part of a bushy tree, at heights up to 90 feet from the ground.

Eggs.—Usually two, reddish-cream, beautifully and regularly marked with spots and longitudinal streaks like brush markings, of red, reddish-chestnut, purplish-red, and underlying ones of purplish-grey; the markings are more pronounced on the larger end. Breeding-season: October to December.

7. Shining Starling *Aplonis metallica* Temminck—7A. Immature
Ap-lōn'-is—no derivation has been found; the name suggests *Apollonis*, from Apollo, the sun: *met'-al-li-ca*—L., *metallicus*, like metal.

Distribution.—Northern Queensland; also occurs in the Celebes, Molucca Islands, and New Guinea.

Notes.—Migratory, arrives in August and departs in March. In flocks, resembling in their flights the introduced Starling, performing

many weird movements; like Starlings, they make the same chattering noise while on the wing. An exceptionally noisy species, and an excellent mimic. In certain districts it is known as "Whirlwind-bird." It breeds in colonies in trees, chiefly tall white mangrove and Moreton Bay ash-trees. Food: native fruits, principally wild nutmegs from which the mace only is eaten; also insects, often caught on the wing.

Nest.—A large, domed structure, rather oval in shape, with an entrance at one side, constructed chiefly of hard twisted tendrils of creeping plants; lined with portions of palm leaves, and a quantity of hair-like fibre. Suspended from the limb of a tree, usually in or close to dense scrub. As many as two hundred nests have been counted hanging in a tree.

Eggs.—Three or four, pale bluish-white, spotted and speckled, chiefly at the larger end, with reddish-brown, dull purple, and dull purplish-grey. Breeding-season: August to December.

8. Regent Bower-bird *Sericulus chrysocephalus* Lewin—8A. Female *Ser-ic'-u-lus*—Gk, *sericos*, silken: *chrÿs-o-ceph'-al-us*—Gk, *chrysos*, golden; Gk, *cephale*, head.

Distribution.—South-eastern Queensland and north-eastern New South Wales.

Notes.—Also called Regent-bird. Mostly in pairs or flocks according to the season of the year. The flocks usually consist of one fully plumaged male to twenty or more females and immature males. Generally observed feeding upon the fruits and berries of native trees, vines, and shrubs. The call-note is a guttural "Te-ar" long drawn out; when alarmed the bird utters a squeaky "Whit-whit." This species builds a bower or playground—a cleared space about 4 feet in diameter, in the centre of which it constructs a bed of sticks, well trampled down, erects two walls, each about 8 inches long and 6 inches high, and then decorates the bower with empty land-snail shells and a few leaves and berries. Often the bower is built without a bed of sticks, the materials of the walls being pushed into the damp soil. Food: insects, native fruits, and berries; also cultivated fruits.

Nest.—A rather deep, saucer-shaped structure, composed of thin dry sticks and twigs, lined with thinner twigs. Usually placed in a mass of foliage or vines, at heights up to 40 feet from the ground.

Eggs.—Usually two, yellowish-stone colour or faint-greyish or dull white, beautifully and delicately marked and marbled with lines and hair-like irregular markings of olive-brown, blackish-brown, and dull purplish-grey; some have the markings predominating around the larger end, in others, these are confined to the centre. Breeding-season: October to the end of January.

9. Golden Bower-bird *Prionodura newtoniana* De Vis—9A. Female *Pri'-on-o-dÿr'-a*—Gk, *prion*, saw; Gk, *ura* (*oura*), tail: *newtoniana*—Alfred Newton (1829-1907), Professor of Zoology, Cambridge.

Distribution.—Northern Queensland.

Notes.—Also called Newton's Bower-bird. Usually in pairs or small parties, frequenting the big scrubs. Its call is a frog-like croak, difficult to imitate; the bird is also a splendid mimic. This species builds an immense bower, usually constructed on the ground between two small trees or between a tree and a bush. It is made of small sticks and twigs which are piled up almost horizontally around one of the trees in the form of a pyramid, attaining a height varying from 4 to 9 feet; a similar but smaller pile is then built around the foot of the other tree. The space between is arched over with stems of climbing plants, and the walls are decorated with pieces of green moss, ferns, orchids, flowers of other plants, and clusters of berries. Through and over the covered run-way the birds play, the males displaying their glorious plumage, erecting the crest and nape feathers and spreading the tail. Food: native fruits and berries.

Nest.—An open, cup-shaped structure, composed of dead leaves, large but thin strips of bark, skeleton leaves, small sticks, and moss; lined with rootlets and twigs. It is usually placed in an opening, ledge, or hollow portion of a tree, or other such sheltered position in dense scrub, and often within 3 or 4 feet of the ground.

Eggs.—Two, pure white. Breeding-season: October to December.

10. Spangled Drongo *Chibia bracteata* Gould

Chib'-i-a—East Indian *chibia*, drongo: *brac-te-ā-ta*—L., *bracteatus*, like a shining metal plate.

Distribution.—North-western Australia to northern Queensland to eastern Victoria, accidental to Tasmania; also occurs in New Guinea.

Notes.—Usually in pairs, frequenting alike scrub and open forest countries; chiefly migratory, arriving in New South Wales during October and departing in March or occasionally as late as May. It shows a preference for trees on the edge of scrubs, and is very similar to the Dollar-bird in the method of securing its food. The call-note is a loud, harsh, cackling whistle, easily recognized when compared with the calls of other species. Food: insects, procured on the wing and among the leaves and blossoms.

Nest.—An open, shallow, cup-shaped structure, composed almost entirely of vine tendrils intermingled with plant-stems; frequently it has a quantity of spiders' webs worked over the forked branch in which it is built; often lined with rootlets. It is attached at the sides to a thin forked stem of an outspreading branch of a bushy tree, at heights up to 50 feet or more from the ground.

Eggs.—Three to five, varying from faint reddish or pinkish-white to pale purplish-grey, spotted, blotched, and finely streaked with pinkish-red, chestnut, and purplish-grey. Breeding-season: October to February.

11. Manucode *Phonygammus keraudreni* Lesson and Garnot

Phōn-y-gam'-mus—Gk, *phone*, voice; Gk, *gamos*, marriage: *keraudreni*—Keraudren, French voyager and naturalist.

Distribution.—Northern Queensland, from Cape York to the Claudie River district; also occurs in New Guinea.

Notes.—Also called Australian Bird of Paradise and Trumpet-bird. Usually in pairs, frequenting the tall fruit and berry-bearing scrub-trees, usually in the company of other fruit-eating species. It has a melodious call, and also utters a loud and deep guttural note. Food: native fruits and berries.

Nest.—An open and rather shallow structure, composed almost entirely of strong curly vine tendrils and creeping plant-stems woven together; lined with finer tendrils. Usually placed in a thin forked branch of a leafy tree, at heights up to 70 feet or more from the ground. The nest of this species is usually placed in a tree close to one containing a nest of a Butcher-bird.

Eggs.—Usually two, pale purplish-pink, well marked with short longitudinal streaks and spots of reddish-chestnut, purple, and purplish-grey, the markings becoming more numerous towards the larger end. Breeding-season: October to the end of January.

12. Koel *Eudynamys orientalis* Linné—12A. Female

Eu-dŷ'-na-mys—Gk, *eu*, well, good; Gk, *dynamis*, power: *or-i-en-tā'-lis*—L., *orientalis*, eastern.

Distribution.—North-western, northern, and eastern Australia to as far south as Victoria; also occurs in Timor, the Molucca Islands, and New Guinea.

Notes.—Also called Cooee-bird and Flinders Cuckoo. Usually in pairs, frequenting the big scrubs and brushes. It is a migratory species, arriving in New South Wales during September and departing in March. Its joyful call, "Coo-ee," may be heard at night as well as in the day-time; besides the "Coo-ee" it has other notes uttered in quick succession. It is exceptionally noisy during mating-time. This Cuckoo is often pursued by other birds, more especially those species that act as fosterers. Food: chiefly native fruits and berries and introduced fruits such as mulberries and figs; also insects.

Parasitic.—known foster-parents number about twelve species, chiefly the larger Honey-eaters and Orioles.

Egg.—Pale reddish-salmon, rather sparingly sprinkled with dots and small irregular markings and short wavy streaks of dull purplish-red and purplish-grey, the latter appearing as though beneath the shell; the markings predominate towards the larger end. Breeding-season: October to January or February.

13. Satin Bower-bird *Ptilonorhynchus violaceus* Vieillot—13A. Female *Ptil'-on-o-rhynch'-us*—Gk, *ptilon*, feather; Gk, *rhynchqs*, bill: *vi-o-lā'-ce-us*—L., *violaceus*, blue.

Distribution.—Eastern Australia, from Cape York to southern Victoria (Lake Corangamite).

Notes.—Usually in pairs or small flocks, according to the seasons of the year, frequenting the big scrubs and brushes. It is plentiful throughout the brushes of the coastal districts where it is usually observed feeding upon native fruits. Females and young males predominate in the flocks and appear to be more fearless than fully coloured males. It has several call-notes, chief of which is a saw-like "wheeze"; it is also a splendid mimic. Wild fruits and berries constitute the greater portion of its food, to which are added insects of various kinds. During the summer and autumn months, when congregated in flocks, it visits orchards and does considerable damage, attacking chiefly the soft fruits. It builds a bower or playhouse on the ground, generally in scrub, and placed near a fallen log or moss-covered rock. A space about 2 or 3 feet in diameter is cleared and covered with a layer of thin sticks and twigs to a depth of about 3 inches. In the centre of this platform two parallel walls of thin sticks are built, the base of the walls being thicker, the inner portion resembling in form an inverted horseshoe. Scattered over the platform, but rarely in the bower, are various decorations, chiefly coloured blue, yellowish-green, and olive-brown, and consisting of feathers, berries, flowers, leaves, pieces of glass, blue-bags, snail shells, and cicada larvæ shells. The birds also paint the inner walls of the bower with powdered charcoal.

Nest.—An open and rather shallow structure, composed of thin sticks and twigs; lined with dried eucalypt leaves. Usually built in the fork of a tree at heights up to 40 feet from the ground; often a clump of mistletoe (*Loranthus*) growing in a tree, is used as a nesting-site.

Eggs.—Two or three, dark cream-colour, spotted and blotched, chiefly towards the larger end, with dark olive-brown, cinnamon-brown, and slaty-grey. Breeding-season: October to the end of December.

PLATE III

BIRDS OF THE BRUSHES AND BIG SCRUBS

1. Rose-crowned Pigeon *Ptilinopus ewingi* Gould

Ptil-in'-o-pus—Gk, *ptilon*, feather; Gk, *pous* (*pous*), *podos*, foot: *ewingi*—Rev. T. J. Ewing, Tasmanian naturalist and friend of John Gould.

Distribution.—North-western Australia (Kimberley) to Northern Territory; also occurs in Flores and Timor.

Notes.—Usually in pairs or flocks, frequenting the fruit and berry-bearing trees of the coastal brushes and scrubs. Similar in habits to the Red-crowned Pigeon.

Nest.—A slightly built platform, about $2\frac{1}{2}$ inches in diameter, composed of small sticks; placed in the branches of a tree up to 8 feet or more from the ground.

Egg.—Pure white. Breeding-season: October to February.

2. Purple-crowned Pigeon *Ptilinopus superbus* Temminck

su-perb'-us—L., *superbus*, handsome.

Distribution.—Eastern Australia, accidental to Tasmania; also occurs in the Molucca Islands and New Guinea.

Notes.—Also called Superb Fruit-pigeon. Usually in pairs or flocks, frequenting the brushes and big scrubs, chiefly of the coastal districts. Similar in habits and food to the Red-crowned Pigeon. Its call-note is a gruff succession of "ooms" uttered slowly.

Nest.—A platform about 3 inches in diameter, composed of a few twigs; built in a small tree on a low horizontal fork at a height up to 10 feet from the ground. Usually situated in open forest at the edge of scrub.

Egg.—White, with a faint creamy tinge. Breeding-season: October to February.

3. Red-crowned Pigeon *Ptilinopus regina* Swainson

re'-gi-na—L., *regina*, queen.

Distribution.—Eastern Australia, as far south as the Bellinger River; also occurs in New Guinea and the islands of Torres Strait.

Notes.—Also called Swainson's Fruit-pigeon and Pink-headed Dove. Usually in pairs or flocks, frequenting the brushes and big scrubs of the coastal districts as well as forests and mangroves. It is a migratory



BIRDS OF THE BRUSHES AND BIG SCRUBS

species, usually arriving in New South Wales during October and November. Except when feeding, it is a difficult bird to locate in the scrub, its plumage harmonizing wonderfully with the leaves of the trees it frequents. The call-note, which is comparatively loud for a small bird, is a single "Coo" repeated about a dozen times. It is generally found feeding in fig or other fruit and berry-bearing trees.

Nest.—A scanty platform, about 5 or 6 inches in diameter, composed of twigs. Generally placed high up from the ground in the leafy branches of a scrub tree, or in a mangrove tree. Usually the egg can be easily seen from beneath the nest.

Egg.—Pure white. Breeding-season: October to February.

4. Green-winged Pigeon *Chalcophaps chrysochlora* Wagler

Chal'-co-phaps—Gk, *chalcos*, bronze; Gk, *phaps*, pigeon: *chrȳs-o-chlōr'-a*—Gk, *chrysos*, golden; Gk, *chloros*, yellow-green.

Distribution.—Northern Territory and eastern Australia; also occurs in Timor, the Molucca Islands, New Hebrides, New Caledonia, and Lord Howe Island.

Notes.—Also called Little Green Pigeon. Usually in pairs, frequenting the brushes and big scrubs of the coastal districts. It is mainly terrestrial in habits, and is remarkably fearless. When flushed, it rises with a whirring sound, flies rapidly through the scrub for a short distance, and then drops suddenly to the ground. Its call-note is a monotonous "Coo-coo" uttered throughout the day. Food: native fruits, berries, and seeds.

Nest.—A scanty and almost flat structure, composed of twigs. Usually placed at the junction of several leafy horizontal branches, on a mass of vines, or on top of a fern growing on a tree, at heights up to 15 feet from the ground.

Eggs.—Two, pale cream-colour. Breeding-season: October to January.

5. Yellow Oriole *Oriolus flavocinctus* King

Or-i-ōl'-us—N.L., from O. Fr. *oriol* and L. *aureolus*, golden; *aurum*, gold: *flāv-o-cinc'-tus*—L., *flavus*, yellow; L., *cinctus*, banded.

Distribution.—Tropical northern Australia.

Notes.—Common in the scrubs and mangroves, where its pleasant, liquid, bubbling notes are heard from daybreak until sunset. Similar in habits to the Olive-backed Oriole. Food: native fruits and berries.

Nest.—A compact, open, cup-shaped structure, composed of strips of soft bark and vine tendrils; lined with twigs and rootlets. Usually placed in the outer branches of a high tree, up to 50 feet from the ground.

Eggs.—Two, pale cream colour, boldly spotted and blotched with blackish-brown and pale slate markings, particularly at the larger end. Breeding-season: September to December.

6. Olive-backed Oriole *Oriolus sagittatus* Latham
sa-git-tā'-tus—L., *sagittatus*, marked with arrows.

Distribution.—Northern, eastern, and southern Australia to as far south as Adelaide.

Notes.—Also called Green Thrush and Cedar Pigeon. Usually in pairs or flocks according to the seasons of the year, frequenting the open forest or brush and showing a preference for the latter as it affords an abundant supply of food, consisting of native fruits, berries, and insects. It is a splendid songster, possessing a varied series of melodious notes; it is also an excellent mimic.

Nest.—A deep, open, cup-shaped structure, composed of strips of stringy-bark, bark-fibre, or paper bark, interwoven with leaves; occasionally it is decorated with lichen and spiders' webs and egg-bags; lined with dried grasses. Usually placed in the outer drooping branch of a tree, up to 60 feet from the ground.

Eggs.—Two to four, usually three, pale cream-colour, spotted and blotched with light and dark umber and slate-grey markings, particularly at the larger end. Breeding-season: September to the end of December or January.

7. Fig-bird *Sphecotheres vieilloti* Vigors and Horsfield—7A. Female
Sphēc-o-thēr'-es—Gk, *sphex*, *sphecos*, wasp; Gk, *theras*, I hunt: *vieilloti*—Louis Jean Pierre Vieillot (1748-1831), a celebrated French ornithologist.

Distribution.—Eastern Australia, from Cairns (northern Queensland) to Sydney (New South Wales).

Notes.—Also called Mulberry-bird and Banana-bird. Usually in pairs, frequenting the big scrubs, brushes, and open forests. It is exceptionally active and noisy, constantly uttering its peculiar parrot-like notes; generally observed feeding in fruit and berry-bearing trees. It also visits orchards, chiefly devouring mulberries, figs, bananas, papaws, loquats, and guavas.

Nest.—An open, shallow structure, composed of vine-tendrils or stems of climbing plants and a few twigs. Although only a scanty structure, through which the eggs are easily seen from beneath, it is strongly built into the forked horizontal leafy twigs of an outer branch of a tree, at heights up to 70 feet from the ground.

Eggs.—Usually three, varying from pale apple-green to dull olive-green, spotted all over, but more so at the larger end, with reddish or purplish-brown markings. Breeding-season: October to December or January.

8. Yellow Fig-bird *Sphecotheres flaviventris* Gould—8A. Female
flāv-i-ven'-tris—L., *flavus*, yellow; L., *venter*, belly.

Distribution.—Northern Territory and northern Queensland.

Notes.—Also called Yellow-breasted Fig-bird. Usually in pairs or small parties, frequenting both scrub and open forest-lands. Very similar in habits to the Southern Fig-bird. Food: native fruits and berries.

Nest.—A neatly made, saucer-shaped structure, without lining, composed of long pieces of vine-tendrils and a few twigs. Generally attached to the end of a drooping branch of a tree, at heights up to 50 feet from the ground. This species often nests in the same tree as the Drongo or the Helmeted Friar-bird.

Eggs.—Usually three, greenish to greenish-white or greenish-brown, spotted and blotched with reddish-brown or purplish-red; many of the markings appear as if beneath the shell. Breeding-season: October to January.

9. Spotted Cat-bird *Ailurædus melanotus* Gray

Ail-ur-æd'-us—Gk, *ailouros*, cat; Gk, *eidos*, form: *mel'-an-o-tus*—Gk, *melas* (*melanos*), black; Gk, *otos*, genitive of *ous*, ear.

Distribution.—Northern Queensland; also occurs in the Aru Islands.

Notes.—Usually in pairs or small flocks, frequenting the big scrubs and brush. It is very similar in habits to the Green Cat-bird and utters the same cat-like cries. Food: native fruits and berries.

Nest.—A large, open, bowl-shaped structure, composed of long twigs and broad leaves; lined with twigs and dead wiry stems of climbing plants. Usually placed near the top of a bushy sapling or small tree in dense scrub, at heights up to 20 feet from the ground.

Eggs.—Usually two, rarely three, cream-coloured. Breeding-season: September to December or January.

10. Green Cat-bird *Ailurædus crassirostris* Paykull

crass-i-ros'-tris—L., *crassus*, thick; L., *rostrum*, bill.

Distribution.—South-eastern Queensland and eastern New South Wales.

Notes.—Usually in pairs or flocks, frequenting chiefly the big scrubs and brush of the coastal districts. It is often observed in the company of the Regent and Satin Bower-birds, feeding upon different kinds of native fruits and berries. Its quaint call, a cat-like "Me-ow" uttered more frequently at daybreak and towards dusk, is a feature of the brush. Apart from the rather loud "Me-ow," it has another single call, a low plaintive "hiss," used mostly when alarmed. Food: native fruits and berries; it is very fond of the seeds of the bangalow and cabbage-tree palms; also insects, chiefly beetles.

Nest.—A bowl-shaped structure, composed of long twigs and stems of climbing plants entwined around a layer of long broad leaves, and occasionally moss; lined with fine dried twigs. Usually placed near the top of a low bushy tree, or in a leafy mass of vines, at heights up to 40 feet from the ground.

Eggs.—Usually two, sometimes three, cream or pale creamy-white. Breeding-season: September to December or January.

11. Tooth-billed Bower-bird *Scenopæetes denti-rostris* Ramsay
Scēn'-o-pæ-ē'-tes—Gk, *scenos*, tent; Gk, *poietes*, maker: *dent-i-ros'-tris*—L., *dens*, tooth; L., *rostrum*, bill.

Distribution.—Northern Queensland (Bellenden Ker Range district).

Notes.—Usually in pairs or small flocks, frequenting the big scrubs and brushes chiefly of the mountain ranges. It is often seen in the company of the Spotted Cat-bird, feeding in native fruit and berry-bearing trees. This species makes a playground, or what some observers call a "circus-ring"—a cleared space on the ground, about 3 to 5 feet in diameter, upon which the birds place fresh leaves, usually from one particular kind of tree. As the leaves wither they are removed and fresh ones added. The birds assemble at these playgrounds to display and gambol. Usually old-established playgrounds are encircled by a great accumulation of the discarded leaves. It is said to be one of the finest of our bird mimics. Food: native fruits and berries; also insects, chiefly beetles.

Nest.—A frail, open, shallow structure, composed of thin dry sticks; lined with thin dry twigs. Usually placed in a thick mass of foliage or clump of vines in a tree, at heights up to 80 feet from the ground.

Eggs.—Usually two, rich creamy-brown. Breeding-season: October to December.

12. Top-knot Pigeon *Lopholaimus antarcticus* Shaw
Loph'-o-lāim-us—Gk, *lophos*, crest; Gk, *laimos*, throat: *an-tarc'-tic-us*—L., *antarcticus*, southern

Distribution.—Eastern Australia; accidental to Tasmania.

Notes.—Also called Flock-pigeon. Usually in flocks, frequenting the big scrubs and brushes. It is nomadic in habits, its movements coinciding with the ripening of different native fruits and berries and the seeds of the bangalow and cabbage-tree palms. Its flesh is excellent eating, and, until protected, great numbers of these birds were shot. During the autumn and winter months it congregates in immense flocks, which travel great distances seeking food; when not feeding in the scrub, it usually keeps to the topmost branches of the highest trees.

Nest.—A platform of fairly stout twigs, usually placed in the thin branches of a tall tree, at heights up to 70 feet from the ground. She-oaks and turpentine-trees are favourite nesting-trees.

Egg.—Pearly white. Breeding-season: October to December.

13. Wompoo Pigeon *Megaloprepia magnifica* Temminck
Meg'-al-o-prep'-i-a—Gk, *megaloprepes*, magnificent: *mag-nif'-i-ca*—L., *magnificus*, magnificent.

Distribution.—Eastern Australia, as far south as Wollongong (New South Wales); also occurs in the Molucca Islands and New Guinea.

Notes.—Also called Magnificent Fruit-pigeon, Purple-breasted Pigeon, Plum-breasted Pigeon, and Bubbly Mary. Usually in pairs or small flocks, frequenting the big scrubs and brushes, chiefly of the coastal

districts. It is generally observed feeding in fruit and berry-bearing trees, often in the company of the Red-crowned or the Purple-crowned Pigeons. It has an extraordinary call, really startling when first heard, the deep bubbling notes resembling "Wallock-a-woo," or the well-known gobble of a domestic turkey. Food: native fruits, berries, and seeds.

Nest.—A scanty platform of sticks laid crosswise in the horizontal branches of a scrub tree, at heights up to 30 feet from the ground. Usually the egg can be seen from beneath the nest.

Egg.—Pure white. Breeding-season: October to February.

14. White-headed Pigeon *Columba norfolciensis* Latham

Col-um'-ba—L., *columba*, dove: *norfolciensis*—from Norfolk Island (named in error as it does not occur there).

Distribution.—Eastern Queensland and eastern New South Wales, to as far south as the Port Hacking district.

Notes.—Also called Baldy. Usually in pairs or small flocks, frequenting chiefly the coastal scrubs and brushes. It is nomadic, its movements being regulated by the supply of food. It is often observed feeding on native fruits and berries, the seeds of bangalow and cabbage-tree palms, and the berries of the ink-weed. Frequently it is flushed from the ground. Its call-note is a loud "Coo-coo-cook," uttered continuously.

Nest.—A scanty platform of sticks, laid crosswise in the horizontal branches of a scrub tree or placed in a tangle of vines, usually at heights up to 20 feet from the ground.

Eggs.—One, rarely two, dull white. Breeding-season: October to January or February.

15. Brown Pigeon *Macropygia phasianella* Temminck

Mac-ro-pyg'-i-a ($g = j$)—Gk, *macro*, long; Gk, *pyge*, rump, tail: *phā-si-ā-nel'-la*—L., *phasianella*, little pheasant.

Distribution.—Northern Territory, Queensland, to southern New South Wales; also occurs from the Philippine Islands to New Guinea.

Notes.—Also called Large-tailed Pigeon, Pheasant Pigeon, and Brownie. Usually in pairs or small flocks, frequenting the big scrubs and brushes of the coastal districts. It prefers the more open parts of the scrubs, bush-tracks, and clearings, where it spends much of its time on the ground feeding upon fallen seeds and berries. When flushed, it usually settles again on a nearby branch. Food: berries of the ink-weed, wild raspberry, and Cape gooseberry.

Nest.—A scanty platform of sticks, laid crosswise in a tangle of vines or on the horizontal branches of a scrub tree, up to 10 feet from the ground.

Eggs.—One, rarely two, dull white or faint creamy-white. Breeding-season: October to December (New South Wales); November, January, February, June, and July (north-eastern Queensland).

16. Torres Strait Pigeon *Myristicivora spilorrhoea* Gray

My-ris'-ti-civ'-or-a—L., *myristica*, wild nutmeg; L., *vorare*, to eat: *spil-orr(h)'-o-a*—Gk, *spilos*, spot; Gk, *orrhos*, tail.

Distribution.—Northern Australia, from Kimberley (north-western Australia) to Port Denison (northern Queensland) and the islands of Torres Strait; also occurs in the Aru Islands and New Guinea.

Notes.—Also called White Nutmeg Pigeon. A migrant, arriving in flocks in Australia during September or October; after breeding it departs at the end of March or April. It breeds chiefly on the islands off the coast, and visits the mainland each day seeking food, which consists of native fruits and berries, such as quandongs, wild nutmegs, and date plums. During the period of incubation the birds carry from the mainland food in their crops for their sitting mates. Until protected many thousands were killed each year.

Nest.—A scanty structure, consisting of a few twigs laid across each other in the fork of a horizontal branch of a tree, chiefly mangroves and tea-trees; often the egg is visible from below.

Egg.—Pure white. Breeding-season: October to the end of January or February.

17. Black-banded Pigeon *Leucotreron alligator* Collett

Lēuc-ōt'-rer-on—Gk, *leucos*, white; Gk, *treron*, timorous: *alligator*—Alligator River, Northern Territory.

Distribution.—Northern Territory (Arnhem Land).

Notes.—The only published note stated that they were never seen except in the region near the sources of the South Alligator River in Arnhem Land; that their flight was very noisy, and that their food consisted mainly of the figs of the bonjon tree, the fruit of which is not bigger than the berries of the mountain ash.

Nest.—Undescribed.

Eggs.—Undescribed.

PLATE IV

BIRDS OF THE BRUSHES AND BIG SCRUBS

1. White-tailed Kingfisher *Tanysiptera sylvia* Gould

Tan-y-sip'-ter-a—Gk, *tanysipteros*, long-feathered: *syl'-vi-a*—N.L., *sylvia*, woodland bird.

Distribution.—Northern Queensland; also occurs in New Guinea.

Notes.—A spring and summer migrant to the coastal districts; inhabits the dense brushes of those areas. Usually in pairs; arrives in November and departs in February or March, sometimes as late as May. Call-note, a persistent trilling, not unlike that of the Sacred Kingfisher. Food: insects and small reptiles.

Nest.—In a hole in a termites' (white ants) nest in a tree or on the ground.

*Egg*s.—Three to four, pure white. Breeding-season: November to January.

2. Brush Cuckoo *Cacomantis pyrrhophanus* Vieillot

Cac-o-man'-tis—Gk, *cacos*, bad; Gk, *mantis*, prophet: *pyr-rho-phā-nus*—Gk, *pyrrhos*, fire-coloured; Gk, *phanos*, bright.

Distribution.—Queensland, New South Wales, Victoria, Northern Territory, and north-western Australia; also occurs in the Molucca Islands, Timor, and New Guinea.

Notes.—Also called Square-tailed Cuckoo; a migrant, arriving in New South Wales and Victoria in October and departing during February or March. Usually singly; inhabits the brushes and dense scrubs; similar in habits to the Fan-tailed Cuckoo. Food: insects of various kinds, especially hairy caterpillars.

Parasitic.—Species that build open, cup-shaped nests are usually selected as foster-parents; over thirty species have been recorded as hosts of this Cuckoo.

Egg.—White, with a band round the larger end, blotched and spotted with faint purplish-brown and lavender markings. Breeding-season: October to January.

3. Rufous Fantail *Rhipidura rufifrons* Latham

Rhip-id-ūr'-a—Gk, *rhipis*, *rhipidos*, fan; Gk, *ura* (*oura*), tail: *rū'-fi-frons*—L., *rufus*, red; L., *frons*, forehead.

Distribution.—North-western and northern Australia, and eastern Australia (from Cape York to Victoria).

Notes.—A migrant, arriving in New South Wales during October and departing in February or March. Usually in pairs, frequenting the brush and dense scrubs. Similar in habits to the Grey Fantail, but unlike that species it is often observed on the ground or on fallen logs, seeking its food. Food: insects, chiefly flies, caught on the wing or on the ground.

Nest.—Shaped like a wineglass without the foot-piece, composed of dried grasses and bark-fibre held together with cobwebs, and lined with finer materials; the tail-piece is about 2 to 3 inches in length. Built on a horizontal thin branch of a tree up to 20 feet or more from the ground.

Eggs.—Two, sometimes three, stone or buff-coloured, with a zone of lavender round the larger end. Breeding-season: November to January.

4. Boat-billed Flycatcher *Machærirhynchus flaviventer* Gould

—4A. Female

Mach-ær'-i-rhynch'-us—Gk, *machaira*, sword; Gk, *rhynchos* (*rhugchos*), beak: *flāv-i-ven'-ter*—L., *flāvus*, yellow; L., *venter*, belly.

Distribution.—Northern Queensland, from Cape York to Cardwell.

Notes.—Also called Yellow-breasted Wherrybill; usually in pairs, inhabiting the dense scrubs of the coastal areas. A very active and lively species, constantly on the move, uttering an agreeable twittering song. Food: insects, caught both on the wing and among the leaves of trees.

Nest.—A saucer-shaped structure, composed of dried stalks of flowering plants, matted together with cobwebs, the inner portion consisting entirely of fine dried tendrils of plants. Built in the angle of a thin horizontal forked branch of a bushy tree.

Eggs.—Two, white, with a zone of purplish-red spots round the larger end. Breeding-season: September to December.

5. Pied Flycatcher *Arses kaupi* Gould

Ar'-ses—L., *arses*, a raising or lifting of the voice or foot: *kaupī*—J. J. Kaup, German ornithologist.

Distribution.—Northern Queensland (Cairns district).

Notes.—Also called Kaup's Flycatcher and Black-breasted Flycatcher. In pairs, frequenting the dense scrubs; very active, spreading its tail and erecting the feathers on the nape and crest; it creeps and hops about the trunks and branches of trees seeking insects, chiefly moths and their larvæ, in the crevices of the bark.

Nest.—Like a miniature basket or hammock, attached on two sides to two thin pendent parallel stems of a vine, composed of thin dried stalks of ferns and tendrils of plants, bound together with cobwebs, and decorated with lichen; lined with fine rootlets. Often built in a tree or in vines, up to 30 feet from the ground.

Eggs.—Two, whitish, spotted, particularly at the larger end, with reddish and lavender markings. Breeding-season: November to January.



BIRDS OF THE BRUSHES AND BIG SCRUBS

6. Frill-necked Flycatcher *Arses lorealis* De Vis

lōr-e-ā'-lis—L., *lorealis*, lored.

Distribution.—Northern Queensland (Cape York).

Notes.—Also called White-lored Flycatcher. Usually in pairs, frequenting the dense scrubs. Similar in habits to the Pied Flycatcher.

Nest.—Similar to that of the Pied Flycatcher.

Eggs.—Two, whitish, spotted with dull and purplish-red markings. Breeding-season: November to January.

7. Black-faced Flycatcher *Monarcha melanopsis* Vieillot

Mon-arch'-a—Gk, *monarchos*, ruler: *mel'-an-op'-sis*—Gk, *melas* (*melanos*), black; Gk, *opsis*, appearance.

Distribution.—Eastern Australia, from Cape York to eastern Victoria; also occurs in Timor and New Guinea.

Notes.—Also called Carinated Flycatcher. A migrant, arriving in New South Wales in the spring, departing during February or March; inhabits brush and dense scrubs. It is very active, searching for food among the leaves and branches, or in the air. Call-note, a loud whistle, "Why-yew, witch-yew." Food: insects of various kinds.

Nest.—Goblet-shaped, composed of green moss and lined with fine rootlets. Usually built in a thin forked horizontal or upright forked branch of a leafy tree, up to 30 feet from the ground.

Eggs.—Two or three, white, covered, sometimes more at the larger end, with reddish and lavender spots. Breeding-season: November to January.

8. Pearly Flycatcher *Monarcha canescens* Salvadori

cān-es'-cens—L., *canescens*, becoming hoary.

Distribution.—Cape York Peninsula (northern Queensland).

Notes.—Usually in pairs, frequenting open forest as well as big scrubs. Similar in habits to the Black-faced Flycatcher.

Nest.—Goblet-shaped, composed of fine strips and flakes of paper bark, bound together with cobwebs; lined with vegetable hair.

Eggs.—Three, white, dotted all over with small reddish-brown irregular-shaped spots with a few underlying markings of pale purple, forming a zone at the larger end. Breeding-season: January.

9. Spectacled Flycatcher *Monarcha trivirgata* Temminck

trī-vir-gā'-ta—Gk, *tri*, three; L., *virgatus*, striped.

Distribution.—Eastern Australia, from Cape York to north-eastern New South Wales; also occurs in Timor, the Molucca Islands, and New Guinea.

Notes.—Also called Black-fronted Flycatcher. Usually in pairs; is a migrant, arriving in New South Wales late in September and departing

during February or March. Inhabits the brushes and dense scrubs. Similar in habits to the Black-faced Flycatcher.

Nest.—A deep, cup-shaped structure, composed of fine strips of bark held together with spiders' webs; lined with fine rootlets and decorated on the outside with cocoons and moss. Usually built in an upright forked branch of a low tree or in the fork of a hanging vine, up to 20 feet from the ground.

Eggs.—Two, dull white, spotted, more so at the larger end, with purple or reddish-brown markings. Breeding-season: October to January.

10. White-eared Flycatcher *Carterornis leucotis* Gould

Carterornis.—Tom Carter, Australian ornithologist, born in England: *lēuc-ōt'-is*—Gk, *leucos*, white; Gk, *otos*, genitive of *ous*, ear.

Distribution.—Northern and eastern Queensland; also occurs in the Louisiade Archipelago and New Guinea.

Notes.—In pairs, frequenting coastal scrubs; very active, catching most of its food on the wing. It hovers about the leaves of the tree-tops, in much the same manner as the Spinebill Honey-eater does. A very inquisitive and noisy bird, calling and chattering incessantly. Food: small insects of various kinds.

Nest.—A deep, cup-shaped structure, composed entirely of soft moss, spiders' cocoons, and cobwebs; lined with fine pieces of palm-fibre and hair-like black fern-stems. Built into the upright fork of a small shrub at about 10 feet from the ground.

Eggs.—Two, whitish, evenly dotted all over with small but irregular spots of reddish-brown. (Type clutch taken on Fraser Island, Queensland, October 1930).

11. White-breasted Robin *Quoyornis georgianus* Quoy and Gaimard

Quoyornis.—Jean Rene Quoy (1790-1869), French scientist and explorer associated with Gaimard: *georgianus*.—King George's Sound, Western Australia.

Distribution.—South-western Australia.

Notes.—Usually in pairs, inhabiting the dense scrubs; it is a very shy species, clinging to the bark of upright tree-trunks and branches in search of food; its call-notes resemble "Kawhow, kawhow, whowah, whow," uttered loudly. Food: insects.

Nest.—A cup-shaped structure, composed of strips of bark, fine twigs, and leaves; lined with fine rootlets and grass.

Eggs.—Two, olive or bronze-green, darker at the larger end. Breeding-season: October.

12. Grey-headed Robin *Heteromyias cinereifrons* Ramsay

Het'-er-o-my'-i-as—Gk, *heteros*, other; Gk, *myia*, fly: *cin-er'-e-i-frons*—L., *cinereus*, ashen; L., *frons*, forehead.

Distribution.—Northern Queensland (Cardwell district).

Notes.—Also called Ashy-fronted Robin; usually in pairs, frequenting the densely timbered ranges; it is seldom seen at any great height from the ground. Similar in habits to the Yellow Robin. Food: insects of various kinds and their larvæ.

Nest.—A cup-shaped structure, neatly composed of very fine rootlets moss; lined with fibre from the lawyer-vine. Usually built between the forked stems of a lawyer-vine.

Eggs.—One, rarely two, greenish or buffy-white, marked with heavy blotches of umber and underlying markings of lavender, chiefly at the larger end. Breeding-season: September to January.

13. White-browed Robin *Poecilodryas superciliosa* Gould

Poe'-cil-o-dry'-as—Gk, *poicilos*, mottled; Gk, *dryas*, a dryad: *su-per-cil-i-ōs'-a*—L., *superciliosus*, browed.

Distribution.—Northern Territory and northern Queensland.

Notes.—Usually in pairs, frequenting the margins of scrubs; it is similar in habits to the Yellow Robin, but much shyer. Food: insects.

Nest.—A cup-shaped structure, composed of twigs and grass, matted together with cobwebs; lined with fibre.

Eggs.—Two, pale greenish, spotted and blotched with purplish-brown or chestnut with underlying markings of lavender. Breeding-season: October to January.

14. Buff-sided Robin *Poecilodryas cerviniventris* Gould

cer-vā-ni-ven'-tris—L., *cervinus*, coloured like a stag; L., *venter*, belly.

Distribution.—North-western Australia to western Queensland (from Derby to Gregory River).

Notes.—Usually in pairs, inhabiting brushes and mangroves; it is very tame, and feeds on the ground, but also searches the tree-trunks for food. Call-note, a loud piping whistle, repeated four times. Food: insects and their larvæ.

Nest.—A cup-shaped structure, composed of twigs, rootlets, and tendrils, and decorated with strips of bark.

Eggs.—Two, pale green, banded on the larger end with blotches of reddish-brown, some of which are distributed over the surface. Breeding-season: October to December (north-western Australia).

15. Northern Yellow Robin *Eopsaltria chrysorrhoa* Gould

Ē-op-sal'-tri-a—Gk, *eos*, dawn; *psaltria*, harper: *chrȳs-orr(h)'-o-a*—Gk, *chrysos*, golden; Gk, *orrhos*, tail.

Distribution.—Northern and eastern Queensland and north-eastern New South Wales.

Notes.—Usually in pairs, inhabiting the brushes and big scrubs. Similar in habits to the Eastern Yellow Robin, but less confiding.

Nest.—Similar to that of the Eastern Yellow Robin.

Eggs.—Similar to those of the Eastern Yellow Robin.

16. Pale Yellow Robin *Eopsaltria capito* Gould

cap'-it-o—L., *capito*, big-headed.

Distribution.—Eastern Australia, from Cairns to the Hunter River.

Notes.—Also called Large-headed Robin. Usually in pairs, inhabiting the brushes and big scrubs. It is very quiet in habits, and has a low twittering call-note; its food is caught on the wing or on the ground. Food: insects of various kinds.

Nest.—A cup-shaped structure, composed of pieces of bark and leaves matted together with cobwebs; lined with fibre, and decorated outside with lichen. Built in lawyer-vines up to 30 feet from the ground.

Eggs.—Two, greenish-white, dotted and blotched with yellowish or chestnut-brown markings, particularly on the larger end. Breeding-season: September to December.

17. White-faced Robin *Eopsaltria leucops* Salvadori

lëuc'-ops—Gk, *leucos*, white; Gk, *ops*, face.

Distribution.—Northern Queensland, from Cape York to the Claudie River; also occurs in New Guinea.

Notes.—Also called White-throated Robin or Fly Robin. In pairs, inhabiting thick scrubs, where it is very quiet; call-note, a short, harsh "Chee-chee-chee," uttered occasionally.

Nest.—A compact, cup-shaped structure, composed of fine strips of bark and fibres; lined with fine fibres, and decorated outside with pieces of white paper-bark. Built in lawyer-vines.

Eggs.—Two, greenish-white, marked all over with reddish dots or spots, which are closer together on the larger end. Breeding-season: December to January.

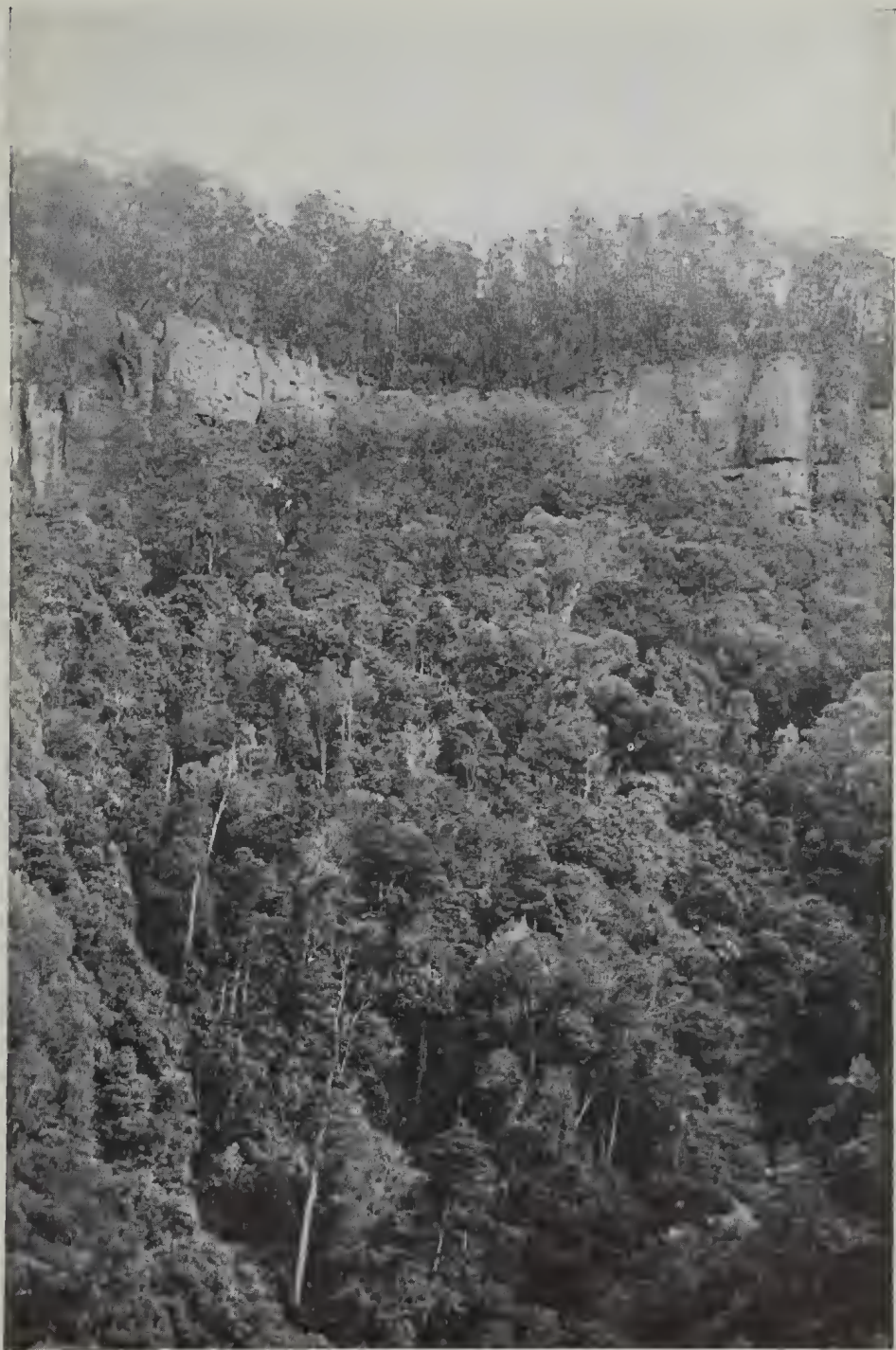
18. Golden Whistler *Pachycephala pectoralis* Latham—18A. Female
Pach'-y-ceph'-al-a—Gk, *pachys*, thick; Gk, *cephale*, head: *pec-tor-ä'-lis*—L., *pectoralis*, breasted.

Distribution.—North-eastern Queensland, New South Wales, Victoria, South Australia, Western Australia, and Tasmania.

Notes.—Also called Yellow-breasted Whistler, White-throated Whistler, Thickhead, Thunder-bird, Cut-throat, and Coachwhip-bird. Usually in pairs, inhabiting brushes, thick scrub, or open forest. It has a rich, sweet, and varied song. It obtains most of its food among the leaves and branches of the trees. Food: insects of various kinds and native seeds and berries.

Nest.—A cup-shaped structure, composed of rootlets, plant-stems, and leaves; lined with finer materials. Usually built in an upright forked branch of a tree at various heights up to 12 feet or more from the ground.

Eggs.—Two or three, stone-coloured or white, speckled with umber-brown, forming a zone at the larger end. Breeding-season: August to December.



A TYPICAL BRUSH

Photo. K. A. Hindwood

19. Olive Whistler *Pachycephala olivacea* Vigors and Horsfield
ol-iv-ā'-ce-a—L., *olivaceus*, olive-coloured.

Distribution.—Southern Queensland to Victoria, Tasmania, and the islands of Bass Strait.

Notes.—Also called Olive Thickhead and Native Thrush. Usually in pairs, inhabiting dense scrubs, more especially those of the ranges; it is shy, preferring the seclusion of the thickets; its call-note resembles "Pee-ee-pooooo"; other notes have a sharp, crack-like ending. Food: insects of various kinds, also seeds and berries.

Nest.—A cup-shaped structure, loosely constructed of strips of bark and fine twigs; lined with finer materials. Usually built in an upright forked branch of a tree.

Eggs.—Two or three, pale yellowish-white, sparsely dotted and blotched with dull grey and umber markings. Breeding-season: September to January.

20. Rufous Shrike-thrush *Colluricincla megarrhyncha* Quoy and Gaimard

Coll-u-ri-cinc'-la—Gk, *collurion*, shrike; Gk, *cinclos*, bird (thrush); *mega-rhynch'-a*—Gk, *megas* (*megalos*), large; Gk, *rhynchos* (*rhugchos*), beak.

Distribution.—Northern Queensland to north-eastern New South Wales; also occurs in New Guinea.

Notes.—Also called Rufous-breasted Shrike-thrush and Red Thrush. Usually in pairs, inhabiting the brushes and big scrubs; it is very active and graceful, and has a pleasing series of call-notes, one of which resembles "Tu-weet-wot-wot"; it is also a fine mimic. Food: insects of various kinds, mostly procured on the ground.

Nest.—A large, cup-shaped structure, composed of dried leaves, strips of bark, and rootlets; lined with fine rootlets, plant-stems, and grass. Usually built in a bush or tree or in a mass of vines.

Eggs.—Two or three, pale pinkish-white, heavily spotted and blotched with reddish-brown and dull purplish-grey markings, chiefly at the larger end. Breeding-season: September to January.

21. Bower Shrike-thrush *Colluricincla boweri* Ramsay

boweri—Thomas Henry Bowyer-Bower (1862-1886), a British collector.

Distribution.—Northern Queensland (Cairns to Cardwell).

Notes.—Also called Stripe-breasted Shrike-thrush. Usually in pairs, frequenting big scrubs of the ranges. Food: insects.

Nest.—A large, cup-shaped structure, composed of dead leaves, bark, and plant-stems; lined with fine rootlets. Usually placed in a dense mass of foliage or lawyer-vines, up to 25 feet from the ground.

Eggs.—Two or three, pale pinkish-white or creamy-white, spotted and blotched with dark olive or reddish-brown and dull slate markings. Breeding-season: October to December.

22. Eastern Whip-bird *Psophodes olivaceus* Latham

Psoph-o'-dēs—Gk, *psophodes*, noisy; *ol-iv-ā'-ce-us*—L., *olivaceus*, olive-coloured.

Distribution.—Eastern Australia, from northern Queensland to Victoria.

Notes.—Also called Coachwhip-bird. Usually in pairs, inhabiting the brushes and scrubs, and also the coastal thickets; a shy bird, seeking the seclusion of the undergrowth, spending a considerable time on the ground, turning over fallen leaves and debris for insects. Its name is derived from its extraordinary call-notes—two soft drawn-out whistles ending on a loud “whipcrack” note, followed instantly by two notes—“Chew, chew,” which are generally uttered by the female, or occasionally by the male. Food: insects of various kinds.

Nest.—A loosely built, cup-shaped structure, composed of rootlets, and lined with finer materials. Usually built in a low bush or among the undergrowth.

Eggs.—Two, pale blue or bluish-white, spotted with irregular markings of black and lavender. Breeding-season: August to January.

23. Western Whip-bird *Psophodes nigrogularis* Gould

nī-gro-gu-lā'-ris—L., *niger*, black; L., *gularis*, throated.

Distribution.—South-western Australia and Mallee of Victoria.

Notes.—Also called Black-throated Coachwhip-bird and Rain-bird. It once inhabited the tea-tree scrubs adjacent to the coast, but has not been observed for many years.

Nest.—A small, saucer-shaped structure, composed of twigs, and placed in low scrubby undergrowth.

Eggs.—Similar to those of the Eastern Whip-bird, but smaller.

NOTE.—Mallee Whip-bird *Psophodes nigrogularis leucogaster* Howe and Ross.

Nest.—A fairly large bowl-shaped structure of bark, lined with fine wiry grass, some dead, some green; outside the nest proper is a thick layer of broom twigs, interwoven with sprigs of green broom tips and tea-tree, more particularly about the rim. Average measurement externally is five inches in diameter by four inches in depth; egg-cavity three inches across by two and one half inches deep. Placed about a foot from the ground in a dense bush.

Eggs.—Two, delicate shade of blue, one egg being slightly paler in colour than the other, marked with fine black and umber spots, the latter colour appearing as if beneath the surface of the shell. Some markings about the larger end assume a scrawling character, and others are hieroglyphic in nature. Type—clutch taken at Manya, north-eastern Victoria, in September, 1920.



NOCTURNAL BIRDS

PLATE V

NOCTURNAL BIRDS

1. Barn Owl *Tyto alba* Scopoli

Ty'-to—Gk, *tyto*, night owl: *al'-ba*—L., *albus*, white.

Distribution.—Australia and Tasmania (cosmopolitan).

Notes.—Also called Delicate Owl, Screech Owl, and Lesser Masked Owl. Usually singly or in pairs, frequenting forest-lands generally. During the day it roosts in a hollow in a tree; such a hollow is also used as a nesting-place. It also frequents as resting-places, wool-sheds, lofts, stables, and other out-buildings, and occasionally a leafy canopy in some thick bush. Its call is a loud screeching note, difficult to describe in words. Food: rats, mice, bats, small birds, and insects, chiefly beetles.

Nest.—In a hollow limb or hole in a tree.

Eggs.—Three to seven, dull white, oval in form. Breeding-season: August to December.

2. Sooty Owl *Tyto tenebricosa* Gould

ten-e-bric-ō'-sa—L., *tenebricosus*, dark.

Distribution.—Northern Queensland, eastern New South Wales, eastern Victoria, and the islands of Bass Strait; also occurs in New Guinea.

Notes.—Nothing has yet been recorded of the habits of this species.

Nest.—In a hollow in a tree.

Eggs.—Three, white and rounded. Breeding-season: October, November, December.

3. Masked Owl *Tyto novæ-hollandiæ* Stephens

novæ-hollandiæ, of New Holland.

Distribution.—Australia generally.

Notes.—Usually singly or in pairs, frequenting forest-lands generally. During the day it roosts in hollows in trees or among thick leafy foliage; occasionally it takes up its abode near homesteads. At night its screeching usually attracts attention. Food: rodents (chiefly rabbits) and small mammals.

Nest.—In a large hollow in a tree or in a cliff.

Eggs.—Probably two, pearly-white. Breeding-season: December is the only month recorded.

4. Cave Owl *Tyto novæ-hollandiæ trougtoni* sub.-sp. nov.

trougtoni—Ellis Le G. Troughton, Mammologist, Australian Museum, Sydney.

Distribution.—Nullarbor Plain (South Australia).

Notes.—Usually singly or in pairs, frequenting the Nullarbor Plain. It roosts and nests in blow-holes and underground caves, venturing forth at night in search of prey. Food: small lizards, small mammals, and rodents.

Nest.—In a blow-hole, eggs deposited on the bare sand.

Eggs.—Two, white and oval, texture of shell coarse, with a faint gloss. Eggs taken on the Nullarbor Plains, in November, 1931.

Description.—Type, adult female, collected at Ooldea, East-West Line, South Australia, by Messrs Troughton and Wright on 16 October 1921, Registered Number 026568, Australian Museum, Sydney. Differs from the typical Masked Owl (*Tyto novæ-hollandiæ*) in its smaller size, lighter coloration on the back, and in having fewer spots on the underparts. Measurements: total length, 460 mm.; wing, 326; culmen, 26; tail, 161; tarsus, 75.

Females of the Masked Owl are noticeably larger and darker than the males; the type of the Cave Owl, however, which is a female, is comparable to an average-sized male of the Masked Owl.

5. Tasmanian Masked Owl *Tyto castanops* Gould

cas'-tan-ops—Gk, *castanon*, chestnut; Gk, *ops*, face.

Distribution.—Tasmania.

Notes.—Also called Chestnut-faced Owl. Usually singly or in pairs, frequenting forests of large and thinly scattered trees skirting open country. It is similar in habits and economy to the Masked Owl. The sexes differ considerably in size, the female being larger, more powerful, and darker in coloration than the male.

Nest.—In a hollow in a tree or in a cliff.

Eggs.—Not recorded.

6. Grass Owl *Tyto longimembris* Jerdon

lon-gi-men'-bris—L., *longus*, long; L., *membrum*, limb.

Distribution.—Northern Territory, Queensland, New South Wales, and Victoria; also occurs in India, China, the Philippine Islands, New Caledonia, and Fiji.

Notes.—Usually singly, frequenting grass-lands, chiefly of the coastal areas. Very little has been recorded of its habits. It rests during the day in "squats" or "hides" under a tussock of grass. Food: rodents, large insects, and frogs.

Nest.—Under or in a tussock of grass.

Eggs.—Usually four, white, oval in form. Breeding-season: May to July.

7. Owlet-nightjar *Ægotheles cristata* Shaw

Æg-o-thēl'-es—Gk, *aigotheles*, goatsucker; *cris-tā'-ta*—L., *cristatus*, crested.

Distribution.—Australia generally, and Tasmania; also occurs in New Guinea and New Caledonia.

Notes.—Also called Little Nightjar, Banded Goatsucker, Crested Goatsucker, and Moth Owl. Usually singly or in pairs, frequenting forest-lands generally. During the day it resorts to hollows in trees, sallying forth in quest of insects (chiefly moths and beetles) as night approaches. When disturbed in its roosting hollow, it utters a loud churring noise, and often while it is "hawking" one hears the same call.

Nest.—In a hole in a tree or stump; lined with leaves.

Eggs.—Three or four, white and rounded, occasionally spotted. Breeding-season: September to December.

8. Marbled Frogmouth *Podargus ocellatus* Quoy and Gaimard

Pō-dar'-gus—from Fr. *podarge* of Cuvier, probably for *le podarge*, gouty foot; *o-cell-ā'-tus*—L., *ocellatus*, marked with little eyes (spotted).

Distribution.—Northern Queensland (Cape York Peninsula); also occurs in New Guinea.

Notes.—Usually singly or in pairs, frequenting the thick scrubs. During the day it shelters among masses of vines or other tangled vegetation. At night it hunts in the scrub. Call-note, a monotonously repeated "Kooloo, kooloo, kooloo." Food: insects, chiefly beetles.

Nest.—A flat platform of twigs, placed on a branch of a tree growing in thick scrub.

Eggs.—Two, white and rounded. Breeding-season: October is the only month recorded.

9. Plumed Frogmouth *Podargus plumiferus* Gould

plū-mif'-er-us—L., *pluma*, feather; L., *fero*, I bear.

Distribution.—South-eastern Queensland and north-eastern New South Wales.

Notes.—This rare species is an inhabitant of the brushes, and so far, nothing has been recorded of its habits.

Nest.—A flat platform of sticks, placed on a branch of a tree at about twenty feet from the ground. A box-tree is generally selected as a nesting-site, and the nest is built of sticks broken off the boughs which overhang the nesting-site.

Eggs.—Two or three, glossy white and rather rounded. Breeding-season: not recorded.

10. Tawny Frogmouth *Podargus strigoides* Latham

strig-ōīd'-ēs—Gk, *strigos*, owl; Gk, *-oides*, from *eidos*, form = like.

Distribution.—Australia generally, and Tasmania.

Notes.—Also called Tawny-shouldered Frogmouth, Tawny-shouldered Podargus and Mopoke. Usually singly or in pairs, frequenting forest-lands generally. It is strictly nocturnal, sleeping in an upright position throughout the day on a branch of a tree. When at rest it simulates the bark of the branch so well that it is often difficult to locate. Its call is a low booming or grunting note like "Oom," repeated twenty or more times, and easily imitated by closing the mouth and making a grunting sound through the nose. Food: insects.

Nest.—An open platform, composed of sticks loosely put together. Generally placed in a horizontal forked branch of a tree up to 40 feet from the ground.

Eggs.—Two or three, white and rounded. Breeding-season: August to December.

11. Papuan Frogmouth *Podargus papuensis* Quoy and Gaimard
papuensis—of Papua or New Guinea.

Distribution.—Northern Queensland (from Cape York to Cairns); also occurs in New Guinea and the Aru Islands.

Notes.—Also called Large Frogmouth and Plumed Frogmouth. Usually singly or in pairs, frequenting open forests and scrubs. During the day it rests in an upright "dead-stick" attitude on a branch. At times it utters a weird and ghostly "laugh"—a rapid "Hoo-hoo-hoo"; it also has a call like the Tawny Frogmouth, a series of "Ooms," uttered for long periods at night. Food: insects, chiefly beetles.

Nest.—A compactly-built platform of sticks and twigs; generally placed in a horizontal forked branch of a tree up to 50 feet from the ground.

Egg.—White and rounded. Breeding-season: September to December, sometimes as late as February.

12. Boobook Owl *Ninox boobook* Latham

Ni'-nox—*ni*, definition not known; *L.*, *nox*, night: *boobook*—an aboriginal name.

Distribution.—Australia generally.

Notes.—Also called Cuckoo Owl and Mopoke. Usually singly or in pairs, frequenting forests generally. During the day it roosts in a hollow in a tree, in the crevice of a rock, or under the thick foliage of a tree. At dusk it ventures forth and searches for food, which consists of insects, small rodents, and small birds. It utters the well-known call resembling "Mo-poke," "More pork," or "Boo-book!"

Nest.—In a hollow limb or hole in a tree.

Eggs.—Three or four, white and rounded. Breeding-season: September to December or January.

13. Spotted Owl *Ninox novæ-zeelandiæ* Gmelin
novæ-zeelandiæ—of New Zealand.

Distribution.—New South Wales, Victoria, and Tasmania; also occurs in New Zealand.

Notes.—Usually singly or in pairs, frequenting the thick scrubs. It is similar in habits and economy to the Boobook Owl. It utters the "Mopoke" call, but not quite as loud as the call of the Boobook Owl.

Nest.—In a hollow limb or hole in a tree.

Eggs.—Two or three, white and rounded. Breeding-season: October to January.

14. Red Boobook Owl *Ninox lurida* De Vis

lū'-rid-a—L., *luridus*, red.

Distribution.—North-eastern Queensland.

Notes.—This species inhabits the big scrubs, and is considered rare. It keeps to the darkest and thickest growths during the day, and at dusk flies out into the open areas. Its call is "Mopoke," often repeated. Food: insects, rodents, and small birds.

Nest.—Not recorded.

Eggs.—Not recorded.

15. Northern Boobook Owl *Ninox ocellata* Bonaparte

o-cell-ā'-ta—L., *ocellatus*, marked with little eyes (spotted).

Distribution.—North-western Australia and northern Queensland; also occurs in New Guinea.

Notes.—Also called Fawn-bellied Owl and Marbled Owl. Usually singly or in pairs, frequenting open forests and scrubs, chiefly in the neighbourhood of watercourses. It is similar in habits to the Boobook Owl. Food: insects, rodents, and small birds.

Nest.—In a hollow limb or hole in a tree.

Eggs.—Two or three, white and rounded. Breeding-season: September to January.

16. Winking Owl *Ninox connivens* Latham

con-nīv'-ens—L., *connivens*, winking.

Distribution.—Australia generally; also occurs in New Guinea and the Molucca Islands.

Notes.—Usually singly or in pairs, frequenting open forest-lands, brushes, and scrubs. During the day it rests in a hollow in a tree or among thick foliage. When disturbed, it utters a growling noise. Its call varies from "Ho-wuk-wuk" or "Keow" when mating, to "Karr, karr, karr, karr, koo-wock" when hawking for insects. Food: insects (chiefly beetles and grasshoppers); also mammals and birds.

Nest.—In a hollow limb or hole in a tree; occasionally in a rabbit-burrow.

Eggs.—Two or three, white and rounded. Breeding-season: August, September, October.

17. Rufous Owl *Ninox rufa* Gould

rū'-fa—L., *rufus*, red.

Distribution.—North-western Australia, Northern Territory, and northern Queensland; also occurs in New Guinea.

Notes.—Little has been recorded of the habits of this fine Owl. During the day it inhabits, for the most part, the big scrubs, hunting at night in the open forest. This species has a low call-note, "Hoo-hoooo," repeated at intervals. Food: chiefly insects and small mammals.

Nest.—In a hollow in a tree.

Eggs.—Two or three, white and rounded. Breeding-season: July and the following months.

18. Powerful Owl *Ninox strenua* Gould

stren'-u-a—L., *strenuus*, powerful.

Distribution.—Eastern Queensland, eastern New South Wales, and eastern and southern Victoria.

Notes.—Also called Great Scrub Owl. Usually singly or in pairs, inhabiting the brushes and big scrubs. It rests during the day in hollows in trees or under a canopy of leaves; when disturbed, it flies away with remarkable swiftness. Its call is a hideous scream, not easily forgotten. Food: birds and mammals.

Nest.—In a hollow limb or hole in a tree growing in dense scrub.

Eggs.—Two or three, white and rounded. Breeding-season: November is the only month recorded.

PLATE VI

MOUND-BUILDING BIRDS

1. **Lyretail Menura** *Menura novæ-hollandiæ* Latham—1A. Female
Men-ur'-a—Gk, *menos*, might; Gk, *oura*, tail: *novæ-hollandiæ*—of New Holland.

Distribution.—South-eastern Australia, from Stanthorpe (southern Queensland) to Victoria.

Notes.—Also called Superb Lyre-bird, Lyre-bird, and Native Pheasant. The vernacular name above, being more appropriate, has been adopted. Generally observed singly, occasionally in pairs, inhabiting the brushes and big scrubs. It is the king of all bird mimics, imitating most of the calls of other species of birds in its locality, as well as sounds produced through human agency. It has several calls of its own, the chief of which is a resounding "Choo! choo! choo!" usually uttered at daybreak, or as a prelude to a bush-bird concert, when it is not unusual for a Lyretail, male or female, to imitate as many as twenty different calls of birds. It is a very shy bird, and is more often heard than seen, the male especially being always difficult to approach. The male builds for himself "dancing," "display," or "scratching" mounds, which are low hillocks about 3 feet across, which he rakes up in the damp soil of the scrubs. As a rule, he makes a series of these mounds and visits them in turn, stopping long enough at each to display and give his repertoire of calls. A male in display is a magnificent spectacle, and it is then only that the observer sees his beautiful lyre-shaped tail to advantage. The tail is spread like an opened fan over his back and head, thus showing the light under-colouring of the feathers, which contrasts with the rather sombre colouring above. The tasks of nest-building, incubating the egg, and rearing the young one are performed entirely by the female, and it is doubtful if the male ever visits the nest. During the day the Lyretail spends its time on the ground scratching among the fallen leaves and debris, or tearing rotten logs to pieces in search of food, which consists of insects of various kinds, worms, land crustaceans, and small land molluscs. At night it roosts high up in the branches of tall trees. Truly it is the world's wonder bird.

Nest.—A bulky structure with an entrance at the side, composed outwardly of sticks, twigs, dried fern leaves, and mosses, with an inner wall neatly made of wiry rootlets and bark-fibre; lined with long downy feathers from the flanks and back of the bird. Usually built on a ledge of rock, in the end of a hollow log, in a hole in a stump, on top of a leaning tree-fern, or between the trunks of two small trees.

Egg.—Varying from a light stone-grey to deep purplish-brown, having short streaks, spots, and blotches of different shades of deep slaty-grey and dark blackish-brown equally distributed over the surface. Some eggs have well-defined zones at the larger end. Breeding-season: nidification usually begins late in May or early in June, the egg being laid in July, while the young Lyretail leaves the nest about the end of September.

2. Albert Menura *Menura alberti* Bonaparte—2A. Female *alberti*—Albert, Prince Consort of Queen Victoria.

Distribution.—Southern Queensland and north-eastern New South Wales, from the Macpherson Range to the Richmond River.

Notes.—Also called Albert's Lyre-bird, Prince Albert's Lyre-bird, and Northern Lyre-bird. Mostly singly, occasionally in pairs, inhabiting a very restricted area of dense scrubs and brushes. It is very similar in habits and economy to the Lyretail Menura, and has the same powers of mimicry, some observers stating that it is the better mimic.

Nest.—A large, dome-shaped structure, outwardly formed of sticks and twigs, dried ferns, mosses, and black hair-like rootlets, the inside of the nest being lined with downy feathers; it is not unlike the nest of the Lyretail Menura. A favourite nesting site is between the large buttressed roots of a fig-tree.

Egg.—Very similar to the egg of the Lyretail Menura. Breeding-season: June and July.

3. Brush Turkey *Alectura lathamii* Gray

Al-ect-ūr'-a—Gk, *alektor*, cock; Gk, *ura* (*oura*), tail: *lathamii*—Dr John Latham (1740-1837), English ornithologist, who published in 1801 the first important work on Australian birds.

Distribution.—Eastern Australia, from Cape York to as far south as the Illawarra district (New South Wales).

Notes.—Also called Scrub Turkey and Wattled Talegallus. Usually in pairs or small parties, inhabiting the brush and big scrubs. At one time this interesting species was plentiful in the brush of the Illawarra district, but it is doubtful if any exist there now. It is an active bird, spending most of its time on the ground, scratching among the fallen leaves and debris for insect-life. When flushed, it partly runs and flies, covering the ground with great rapidity, and only occasionally will it seek refuge in trees except for roosting at night. Food: insects of various kinds and their larvæ and native fruits and seeds.

Nest.—A large mound of earth, leaves, sticks, and debris, raked together from the surrounding surface of the ground. These natural incubators vary in size according to age or to the number of birds occupying them; a new mound usually measures from 7 to 10 feet in diameter, by about 3 feet in height; an old one may measure as much as 30 feet in diameter by 6 feet in height. Nesting mounds are repaired (scratched



MOUND-BUILDING BIRDS

over) and added to each breeding-season. The eggs are deposited on end (the larger end uppermost) in holes about 18 inches to 2 feet deep, and are then covered over. The young are fully feathered when hatched, and fight their way out of the mound unassisted.

Eggs.—White when first deposited in the mound, soon becoming soiled and stained. The clutch varies from seven to twelve, but as many as thirty or more have been taken from a mound, such a number being the result of two or three birds laying in the same mound. Breeding-season: September to January, and sometimes as late as March.

4. Mallee Fowl *Leipoa ocellata* Gould

Leip-ō'-a—Gk, *leipein*, to leave; Gk, *oon* (plural *oa*), egg: *o-cell-ā'-ta*—L., *ocellatus*, marked with little eyes.

Distribution.—Southern Australia and the inland portions of New South Wales, north-western Victoria, South Australia to south-western Australia.

Notes.—Also called Lowan, Gnow, Mallee Hen, Pheasant, and Native Pheasant. Usually singly or in pairs, frequenting the dry inland scrubs (the mallee country chiefly). Owing to its shy disposition and wary nature, it is seldom seen. Its flesh is much sought after as an article of food, and although protected, it is frequently shot. The food of this species consists chiefly of berries, seeds, and insects and their larvæ. This valuable and interesting bird is in grave danger of extermination, because of the depredations of the introduced fox.

Nest.—A large mound of leaves and grass covered with gravel, sand, and debris, and raised into a pyramidal heap. An opening is made in the fermenting material into which the eggs are deposited in the form of a circle; a full clutch generally consists of three layers. Nesting-mounds are usually constructed in situations exposed to the sunshine.

Eggs.—The number of eggs varies from six to twelve, probably two birds lay in the same mound. When fresh they are a delicate pink, but soon become soiled and stained a dull reddish-brown. Breeding-season: September to February or March.

5. Scrub Fowl *Megapodius reinwardt* Dumont

Meg-a-pod'-ius—Gk, *megas*, large; Gk, *pus* (*pous*), *podos*, foot: *reinwardt*—Reinwardt, Dutch collector in the East Indies.

Distribution.—Northern Australia, from Kimberley (north-western Australia), to Yeppoon (Queensland); also found from Lombok to New Guinea.

Notes.—Also called Scrub Hen and Jungle Fowl. Usually in pairs or small parties, frequenting the scrubs of the coastal districts. It is cautious in habits and, when disturbed, it will either run, or fly clumsily and settle on the lower branch of a tree. It has a peculiarly harsh and loud cry, uttered at break of day, and often during the night while at roost. Food: native fruits, berries, seeds, and the young shoots of many kinds of trees and shrubs.

Nest.—An immense nesting-mound, consisting of sand, leaves, sticks, and debris of all sorts, raked into a heap from the surrounding surface of the ground. The sites selected are generally in the densest part of the scrub, sheltered above by large trees. The mounds vary in size according to the time they have been in use; usually they measure about 40 or 50 feet in circumference and 12 or 15 feet in height. The eggs are deposited on their ends (the larger end upwards) in holes scratched out of the mound, at depths varying from 18 inches to 3 feet.

Eggs.—Six or eight appears to be a normal clutch; when newly laid they are a pale pinkish-brown, soon passing into a light coffee-brown, and becoming darker after being in the mound a few days. Breeding-season: September to December or January.

PLATE VII

GROUND-FREQUENTING BIRDS

1. **Nullarbor Quail-thrush** *Cinclosoma alisteri* Mathews—1A. Female
Cin-clo-sōm'-a—Gk, *cinclos* (*kigklos*), bird; Gk, *soma*, body: *alisteri*—
Alister, son of Gregory M. Mathews, ornithologist.

Distribution.—Western Australia (Nullarbor Plain).

Notes.—Also called Black-breasted Ground-bird. In pairs or family parties, according to the season of the year; it is very shy and difficult to approach, and keeps out of sight in the shelter of bushes. When flushed, it rises with a "whirring" noise of the wings, flies a short distance, and then alights seeking further cover. Food: chiefly insects.

Nest.—An excavation in the ground, neatly lined with dried grasses, the rim being finished off with a thick edging of coarse herbage. Usually placed at the foot of a dead blue-bush.

Eggs.—Three, dull creamy-white with a very faint greenish tinge, spotted and blotched all over with olive-brown and slaty-grey markings, more numerous at the larger end. Breeding-season: October is the only month on record.

2. **Cinnamon Quail-thrush** *Cinclosoma cinnamomeum* Gould—2A. Female

cin-na-mōm'-e-um—L., *cinnamomeus*, cinnamon.

Distribution.—The interior of Australia, and South Australia (Gawler Ranges).

Notes.—Also called Cinnamon Ground-bird and Cinnamon Ground-thrush. Usually in pairs or family parties; lives in the most arid stony country, where the colours of its plumage closely harmonize with the surroundings. During early morning it roams the open country seeking food, but keeps to the shelter of low dense bushes during the heat of the day. Food: chiefly insects.

Nest.—Open cup-shaped, formed of a few twigs and dead leaves; placed at the foot of a low bush.

Eggs.—Two, greyish-white to brownish-grey, marked with large blotches and longitudinal streaks of umber brown and a few underlying markings of dull bluish-grey. Breeding-season: March, April.

3. **Chestnut Quail-thrush** *Cinclosoma castanotum* Gould

cas-ta-not'-um—Gk, *castanon*, shortened to *casta*, chestnut; Gk, *noton*, back.

Distribution.—Interior of New South Wales, south-western Queensland, Victoria, and South Australia; also south-western Australia and central Australia.

Notes.—Also called Chestnut-backed Ground-bird and Chestnut-backed Ground-thrush. Usually in pairs or family parties. It is shy and local in habits; when flushed it rises with a “whirr,” flies a short distance, and alights on the ground or on a low limb of a tree. Frequents alike open forest country, mallee, “marlock,” and mulga scrubs. Call-note, a low piping whistle. Food: chiefly insects. The female is duller than the male, the throat and chest being grey.

Nest.—A depression in the ground, loosely lined with twigs, strips of bark, and dead leaves; sheltered by a dead bush.

Eggs.—Two, dull white or greyish-white, spotted all over, more so at the larger end, with brown and lavender markings. Breeding-season: August to December.

4. Chestnut-breasted Quail-thrush *Cinclosoma castaneothorax* Gould
cas-tan'-e-o-thō'-rax—L., *castaneus*, chestnut; Gk, *thorax*, chest.

Distribution.—Southern Queensland, inland to north-western Australia, and Western Australia.

Notes.—Also called Chestnut-breasted Ground-thrush. Little is known of the habits of this rare species except that it frequents scrubby belts of trees; when flushed it is difficult to find again. The female is duller in colour than the male.

Nest.—Not described.

Eggs.—A. J. North describes an egg said to be of this species as dull white, thickly sprinkled with irregular shaped dots, spots, and small blotches of blackish-brown, intermingled with similar underlying markings of inky-grey, which predominate on the larger end.

5. Spotted Quail-thrush *Cinclosoma punctatum* Shaw
punc-tā'-tum—L., *punctatus*, spotted.

Distribution.—Southern Queensland, New South Wales, Victoria, South Australia, and Tasmania.

Notes.—Also called Spotted Ground-bird, Ground-thrush, Ground-dove, and Babbling-thrush. Usually in pairs or family parties; local in habits. It is rather a shy species, and when flushed rises like a Quail, flies a short distance away, and either alights on the ground or on a limb of a tree. Food: chiefly insects, procured on the ground under debris. The female is duller in colour than the male, has the throat white, the spot on the side of the neck is light rufous, but lacks the black band across the breast.

Nest.—Cup-shaped, loosely put together, and composed of strips of bark, leaves, and grasses; lined with softer materials. Usually built at the foot of a tree, near a rock or log, or hidden against a tuft of grass or low bush.

Eggs.—Two, sometimes three, dull white, spotted all over with dark brown and lavender markings. Breeding-season: August to February.



GROUND-FREQUENTING BIRDS

6. Rainbow Pitta *Pitta iris* Gould

Pit'-ta—N.L., *pitta*, a bird: *i'-ris*, Gk, *iris*, the rainbow.

Distribution.—North-western Australia and Northern Territory.

Notes.—Inhabits the dense bamboo jungles, mangroves, and scrubs near the coast, through which it runs with ease; the boldness and richness of its markings make it a most attractive bird.

Nest.—A large, covered structure with an entrance at the side, composed of dead strips of bamboo leaves and other plant sheaths, loosely put together; built in the mangroves or in clumps of bamboo at about 6 feet from the ground; occasionally on the ground.

Eggs.—Four, creamy-white, dotted, spotted, and sparingly blotched with sepia and underlying markings of dull purplish-grey. Breeding-season: January to March.

7. Noisy Pitta *Pitta versicolor* Swainson

ver'-si-col-or—L., *versicolor*, different coloured.

Distribution.—Eastern Australia, from Cape York to northern New South Wales.

Notes.—Also called Dragoon-bird. Inhabits the dense brushes and big scrubs; very inquisitive and will answer an imitation of its call-notes—"Walk to work" or "Want a watch." It lives almost entirely on the ground, feeding on land snails, slugs, and insects. The "breaking-ground" is a stone or small stump, where it breaks the shells of land snails.

Nest.—A large, dome-shaped structure with an entrance at the side, composed of thin sticks, twigs, and green mosses; built on the ground, usually between the buttresses of a fig-tree.

Eggs.—Three to five, usually four, creamy-white, spotted and blotched with blackish-brown and underlying markings of bluish-grey. Breeding-season: October to December or January.

8. Blue-breasted Pitta *Pitta mackloti* Temminck

mackloti—Macklot, a Dutch traveller.

Distribution.—Northern Queensland, from Cape York to Cardwell; also occurs in New Guinea, the Aru Islands, Malaysia, and Java.

Notes.—It is a migrant, arriving in Australia about October, probably from New Guinea. Inhabits the dense scrubs, where it hops along the ground with great rapidity. Its call is a mournful whistle of two notes like "Wantok watch;" it is said to be a perfect ventriloquist.

Nest.—A dome-shaped structure with an entrance at the side, composed of twigs and leaves; lined with fine, hair-like fibres. It is usually built on a stump or in a mass of vines as high as 8 feet from the ground.

Eggs.—Three to four, creamy-white, dotted, spotted, and blotched with purplish-brown and underlying markings of bluish-grey. Breeding-season: October to December.

9. Black-breasted Quail *Turnix melanogaster* Gould

Tur'-nix—L., *turnix*, quail: *mel'-an-o-gas'-ter*—Gk, *melas* (*melanos*), black; Gk, *gaster*, belly.

Distribution.—Eastern Australia, from Rockingham Bay to northern New South Wales.

Notes.—Also called Black-fronted Quail. A very rare species; inhabits the thick scrubs, rarely going beyond the outer fringes of the scrub. It is similar in habits to the Painted Quail. The bird figured is a female; the male has a brown crown and a whitish throat.

Nest.—A depression in the ground under a low bush or tussock of grass; lined with grasses.

Eggs.—Three or four, pale buffy-white, minutely and thickly freckled all over with light vinous-brown, with which are intermingled spots and blotches of chestnut-brown, purplish-grey, and black, also underlying markings of faint lilac-grey. Breeding-season: probably February or March.

10. Painted Quail *Turnix varia* Latham

var'-i-a—L., *varius*, different.

Distribution.—Queensland, New South Wales, Victoria, South Australia, Western Australia, and Tasmania.

Notes.—Also called Varied Quail, Scrub Quail, and Dotterel Quail. Inhabits open forest, heath-lands, lightly timbered ridges, also big scrub, and is usually in pairs or family parties. It is partly nocturnal, and has a booming note somewhat resembling that of the Bronze-wing Pigeon. The female is slightly larger than the male.

Nest.—A shallow depression, scratched in the ground; thinly lined with fine dried grasses, and placed beneath the shelter of a tuft of grass, low bush, or rank herbage.

Eggs.—Usually four, faint buffy to greyish-white, almost obscured with freckles, dots, and spots of chestnut or wood-brown, dull violet, and slaty-grey markings. Breeding-season: September to February (eastern Australia).

11. Chowchilla (Northern Log-runner) *Orthonyx spaldingi* Ramsay —11A. Female

Or'-thon-yx—Gk, *orthos*, straight; Gk, *onyx*, claw: *spaldingi*—Edward Spalding, collector and taxidermist, Queensland.

Distribution.—Northern Queensland (Cairns district).

Notes.—Also called Spalding's Spinetail. Inhabits the dense scrubs of the mountain ranges, usually in small parties; it is shy and very noisy, and is more often heard than seen. Call, a series of notes, like "Chowchilla-chow-chow-chilla." It is also said to be a wonderful mimic, capable of imitating almost any sound. Food: insects, worms, and berries.

Nest.—A dome-shaped structure with an entrance at the side, com-



OPEN FOREST COUNTRY

Photo, P. A. Gilbert

posed of sticks, twigs, dead leaves, and mosses. Usually placed in a mass of lawyer vines, in a staghorn or bird's-nest fern growing on a tree or on a log.

Egg.—Pure white. Breeding-season: May to August or November.

12. Log-runner *Orthonyx temmincki* Ranzani—12A. Female *temmincki*—C. J. Temminck (1778-1858), Dutch ornithologist.

Distribution.—South-eastern Queensland and north-eastern New South Wales.

Notes.—Also called Spinetail and Spine-tailed Log-runner. Inhabits the dense scrubs and brushes; usually in pairs or family parties; it is very noisy, but possesses a pretty song, a series of "Quicks," usually uttered in an apparently excited manner. Its food consists of insects, chiefly beetles and small land snails and slugs, collected by scratching among the fallen leaves and other debris. It uses both legs and tail—the tail with a "sideway" action, its spine-like tips making a perfect rake.

Nest.—A dome-shaped structure with an entrance at the side, composed of sticks; lined with mosses; built on or near the ground.

Eggs.—Two, pure white. Breeding-season: April to July.

13. Fern-wren *Oreoscopus gutturalis* De Vis

Or'-e-o-scop'-us—Gk, *oros*, *oreos*, mountain: *gut-tur-ā'-lis*—L., *gutturalis*, throated.

Distribution.—Northern Queensland (Herberton Range to Cairns).

Notes.—Inhabits the dense scrubs of the mountain ranges; is local, preferring damp places in the scrub, where, if one stands quiet for a while, one is almost sure to hear its low plaintive call, or hear it scratching among the debris and fallen leaves. Its food consists chiefly of insects, procured among ferns, lichens, and mosses, or underneath the partly stripped-off bark of some fallen giant of the scrub.

Nest.—A large, dome-shaped structure with an entrance at the side, composed of fresh green mosses and fine black fern-stems. Built on the ground among ferns or partly built into a hole in a bank of a gully.

Eggs.—Two, pure white. Breeding-season: extends from July to February.

14. Rock-warbler *Origma rubricata* Latham

O-rig'-ma—Gk, *orygma*, a hollow, cave: *ru-bri-cā'-ta*—L., *rubricatus*, red-dened.

Distribution.—Central eastern New South Wales (Hawkesbury sandstone area).

Notes.—Also called Cataract-bird, Cave-bird, Rock Robin, and Rock Swallow. Usually in pairs, frequenting chiefly rocky ravines and gullies; never far from water. It is an active bird, moving with rapidity over the

surface or under rocks and fallen logs, seeking insects of all kinds. Its clear call-notes, some of which resemble those of the White-browed Scrub-wren, are uttered at intervals.

Nest.—A dome-shaped structure with an entrance at the side hooded over, composed of bark-fibre and grasses, coated with fine green moss and also cobwebs and spiders' egg-bags; lined with fine bark-fibres and feathers. The upper portion of the nest, where it is attached to the ceiling of the cave, is formed almost entirely of cobwebs. Nests are built in all manner of situations—sheds, out-houses, under culverts, in drains or shafts, but mostly in caves.

Eggs.—Three, pure white, occasionally marked with very fine spots. Breeding-season: July to December.

15. Pilot-bird *Pycnoptilus floccosus* Gould

Pyc-nop'-til-us—Gk, *pycnos*, thick; *ptilon*, feather: *flocc-ō'-sus*—L., *floc-cosus*, downy.

Distribution.—South-eastern New South Wales to eastern Victoria (Dandenong Ranges).

Notes.—Also called Downy Pycnoptilus. Usually in pairs, inhabiting heavily timbered mountain ranges and dense scrubs. It is more often heard than seen; its beautiful notes, resembling "Guinea-a-week," are heard above the songs of most other birds. It is very active while seeking insect-life among the debris and fallen leaves.

Nest.—A dome-shaped structure with an entrance at the side, composed of strips of bark and bark-fibre, with which are interwoven leaves, fern rootlets, and grass; lined with bark-fibre and feathers. Built on the ground.

Eggs.—Two, varying from drab to smoky-brown and dusky-grey, darker at the larger end, usually forming a zone. Breeding-season: August to February.

16. Ground-thrush *Oreocincla lunulata* Latham

Or'-e-o-cinc'-la—Gk, *oros*, *oreos*, mountain; Gk, *cinclos*, bird: *lū-nu-lā'-ta*—L., marked with little moons (crescents).

Distribution.—Eastern Australia (from northern Queensland to Victoria), South Australia, Kangaroo Island, and Tasmania.

Notes.—Also called Mountain Thrush and King Thrush. Usually in pairs or family parties. Inhabits chiefly the floors of dense scrubs and brush, where large moss-covered rocks and logs abound. Its food is procured on the ground among fallen leaves and debris, and consists of insects of various kinds, worms, land crustaceans, and molluscs. Its notes resemble the noise made by a ratchet-drill boring a metal plate.

Nest.—A round, open, cup-shaped structure, composed of strips of bark, green mosses, or wiry rootlets. Usually placed in a fork of a low tree, wedged between a thick forked trunk of a tree, or on a horizontal moss-covered branch.

Eggs.—Two or three, either dull bluish-grey, buff, or pale stone-coloured, marked all over with reddish-brown freckles and blotches. Breeding-season: July to October.

17. Southern Scrub-robin *Drymodes brunneopygia* Gould

Dry-mō'-des—Gk, *drymodes*, of the woods: *brun'-ne-o-pyġ'-i-a*—L., *brunneus*, brown; Gk, *pyge*, rump, tail.

Distribution.—Interior districts of Victoria, South Australia, and south-western and mid-western Australia.

Notes.—Inhabits low scrub-lands, chiefly mallee, mulga, "marlock," and pine scrubs; usually in pairs, is friendly and answers imitations of its call-notes, which resemble "Chip-pip-er-ee," "Chip-pip-ee," and "Chip-peer-a-peet." Food: insects of various kinds, procured on the ground among fallen leaves and debris.

Nest.—Cup-shaped, somewhat loosely constructed, composed of strips of bark outwardly protected by twigs; lined with grass and a few rootlets. Built in a slight depression scraped in the ground among scrub.

Egg.—Greenish-grey, spotted and blotched with brown, often with a zone at the larger end. Breeding-season: September to November or January.

18. Northern Scrub-robin *Drymodes superciliaris* Gould

su-per-cil-i-ār'-is—L., *superciliaris*, browed (above the eye).

Distribution.—Eastern Northern Territory and northern Queensland.

Notes.—Usually in pairs, living on the ground, where it hops about quietly, turning over leaves and other debris in search of insect-life. Its note is a loud shrill whistle, which it will answer if imitated. The female alone builds the nest and incubates the eggs.

Nest.—A circular depression scratched in the ground, roughly lined with long wiry tendrils of plants, leaves, and fine fibres. Usually placed at the foot of a small tree.

Eggs.—Two, dull white or stone-grey, uniformly freckled and spotted with shades of brown and underlying markings of faint bluish-grey. Breeding-season: November to January.

19. Noisy Scrub-bird *Atrichornis clamosus* Gould

A-trich-orn'-is—Gk, *atrachos*, without hair or bristles; Gk, *ornis*, bird: *clā-mō'-sus*—L., *clamosus*, noisy.

Distribution.—South-western Australia only, apparently extinct.

Notes.—To date only males of this species have been recorded. It once inhabited the dense thickets and undergrowth of a limited area and was very shy but noisy; its call was a sharp whistle repeated eight or nine times rapidly, with *crescendo*, concluding with a sharp resounding crack.

Nest.—Unknown.

Eggs.—Unknown.

20. Rufous Scrub-bird *Atrichornis rufescens* Ramsay

rū-fes'-cens—L., *rufescens*, reddish.

Distribution.—South-eastern Queensland and north-eastern New South Wales, from the Macpherson Range to the Chichester River.

Notes.—Usually in isolated pairs, inhabiting the dense tangled undergrowth of the big scrubs and brushcs. An extremely shy bird, rarely exposing itself, creeping mouse-like among the debris and rotting leaves. It is a wonderful mimic and ventriloquist, and for its size possesses the loudest call-notes of all the birds of the scrubs. Its "Chip-chip-chip" call, rapidly repeated with *crescendo*, is deafening, and is the one call in which its ventriloquial powers are not used. Its food consists of insects of various kinds and small land crustaceans. The female differs from the male in not having the black feathers on the breast.

Nest.—Like a coco-nut with an entrance at the side; instead of fibre, the outside covering is composed of dead leaves, ferns, twigs, and broad grass-stems; lined with a curious material like papier mâché or wood-pulp, and perfectly smooth inside. Usually built in a clump of grass or mass of ferns at about 6 inches from the ground.

Eggs.—Two, pinkish-white or pinkish-buff, spotted and blotched with pinkish-red or reddish-brown and purplish-brown markings, chiefly near the larger end. Breeding-season: October is the only month recorded.

21. White-throated Nightjar *Eurostopodus mystacalis* Temminck

Eu-rō'-sto-pod'-us—Gk, *eurostos*, strong; Gk, *pous, podos*, foot: *mys-tacā'-lis*—L., *mystacalis*, moustache.

Distribution.—Eastern and southern Australia and New Guinea.

Notes.—Also called Night Hawk, Moth Hawk, and Fern Owl. Usually met with singly during the day, resting on the ground; at night numbers may be seen "hawking" for insects. It has an extraordinary call, difficult to describe. Prefers open forest country, keeping to the ridges separated by thickly timbered gullies. Its food consists of insects, principally large moths.

Nest.—None, the single egg being deposited on the ground.

Egg.—Buff, stone, or cream-coloured, sparingly spotted and blotched with black and underlying markings of bluish-grey. Breeding-season: October to December or January.

22. Spotted Nightjar *Eurostopodus guttatus* Vigors and Horsfield

gut-tā'-tus—L., *guttatus*, spotted.

Distribution.—Australia generally; also occurs in the Aru Islands and New Ireland.

Notes.—Usually singly, at rest on the ground during the day; when flushed, it rises and flies off to settle again on the ground. At twilight numbers may be seen "hawking" insects above the tree-tops or over the grass-lands. It has a peculiar call like "Caw, caw, caw, gobble, gobble, gobble,"

the "caws" being loud and the "gobbles" gradually diminishing in volume. Its food is similar to that of other Nightjars.

Nest.—None, the egg is deposited on the bare ground.

Egg.—Yellowish-olive, sparingly spotted and blotched with reddish-purple or roundish lavender markings. Breeding-season: September to December.

23. Large-tailed Nightjar *Caprimulgus macrurus* Horsfield

Cap-ri-mulg'-us—L., *caper*, goat; L., *mulgere*, to suck: *mac-rūr'-us*—Gk, *macro*s, long; Gk, *ura* (*oura*), tail.

Distribution.—Northern Territory and northern Queensland.

Notes.—Usually singly, at rest during the day on the ground or on a log. Inhabits forest country near the coast, and the pockets on the mountains; it has a strange call like "Chop, chop," resembling the cutting down of a tree heard at a distance. Food: insects of various kinds, chiefly moths.

Nest.—None, the eggs are deposited on the bare ground.

Eggs.—Two, pinkish-stone or a faint reddish-cream, with indistinct spots, blotches, and clouded markings of purplish-brown and slate-grey. Breeding-season: September to October.

PLATE VIII

BIRDS OF THE OPEN FOREST

1. Magpie-lark *Grallina cyanoleuca* Latham

Gral'-lī'-na—*grallina*, N.L., from *grallae*, stilts: *cŷ-an-o-lēūc'-a*—Gk, *cyanos*, blue; Gk, *leucos*, white.

Distribution.—Australia generally; accidental to Tasmania.

Notes.—Also called Peewee, Mudlark, Murray Magpie, Little Magpie, Peewit, and Pugwall. One of the most graceful, as well as useful, of our birds. It is found mostly in the open, and never far from water. Its call is responsible for its name "Peewee" which is usually uttered, accompanied with peculiar wing-beats, when it alights. It has an uncommon flight, straight, with a heavy, flapping motion of the wings. Food: insect-life procured on the ground, and pond-snails. The female has a white forehead and throat.

Nest.—A bowl-shaped structure, composed of mud, which is reinforced with horse-hair, fur, grass, and feathers; lined with grass and occasionally feathers. Generally built upon a bare horizontal limb of a tree, preferably one growing in, or near, water. Frequently one finds the nest of the Willie Wagtail in the same tree, usually on a lower branch.

Eggs.—Three to six, usually four, varying from pure white to pinkish or reddish-white, spotted and blotched with purplish-red and underlying markings of slate-grey, chiefly towards the larger end, often forming a well-defined zone. Breeding-season: July to March.

2. Silver-backed Butcher-bird *Cracticus argenteus* Gould

Crac'-tic'-us—Gk, *cracticos*, loud-voiced: *ar-gen'-te-us*—L., *argenteus*, silver.

Distribution.—North-western Australia and Northern Territory.

Notes.—An intermediate form between the Grey and Pied Butcher-birds. Similar in habits and song to the former.

Nest.—An open structure, composed of dead twigs and roots; lined with dead grass or rootlets. Mostly placed in a forked branch of a tree at about 20 feet from the ground.

Eggs.—Usually three, pale greyish-green, with spots of burnt sienna, chiefly at the larger end. Breeding-season: August to January.

3. Grey Butcher-bird *Cracticus torquatus* Latham

tor-quā'-tus—L., *torquatus*, collared.

Distribution.—Eastern Australia (to central Queensland), southern, Western, and central Australia, and Tasmania.

Notes.—Also called Collared Butcher-bird, Collared Crow-shrike, Derwent Jackass, Tasmanian Jackass, and Whistling Jackass. Usually in pairs; its rich, mellow, flute-like notes are among the finest of our bird songs. It is an early riser and one of the first birds to call. It has the true shrike habit of making a "larder," hanging parts of its "kill" on thorns or in small forks of a tree, to be eaten at leisure. It is a menace to caged birds, visiting the cages and tearing off the legs, wings, or heads of the occupants when they fly against the wire. Food: insects of various kinds, chiefly beetles, crickets, and grasshoppers; also small reptiles, birds, and field-mice.

Nest.—A shallow, cup-shaped structure, composed of twigs, rootlets, and vine-tendrils; lined with rootlets, dead grasses, and other material. Usually built in an upright forked branch of a tree, at heights up to 40 feet or more from the ground.

Eggs.—Three or four, varying in pale shades of greyish-green, greyish-blue, olive, and light brown, spotted and blotched with dull reddish-brown, purplish-red, or chestnut-brown, the markings being confined almost entirely to the larger end, often forming a zone. Breeding-season: August to January.

4. Black-backed Butcher-bird *Cracticus mentalis* Salvadori and D'Alberty

men-ta'-lis—L., *mentalis*, chinned.

Distribution.—Northern Queensland (Cape York district only); also occurs in New Guinea.

Notes.—Usually in pairs; it is similar in habits to the Grey Butcher-bird; its notes are also similar, but are very much weaker, and can only be heard a short distance away. Food: insects, chiefly beetles.

Nest.—A shallow, cup-shaped structure, composed of sticks; lined with strong grass-roots. Placed in the forked branches of a tree in forest country, at heights up to 35 feet or more from the ground.

Eggs.—Usually three, pale greenish-grey or pale brown, spotted and blotched with reddish-brown, purplish-brown, and dull slate markings, chiefly at the larger end. Breeding-season: October to December.

5. Pied Butcher-bird *Cracticus nigrogularis* Gould

ni-gro-gu-lā'-ris—L., *niger*, black; L., *gularis*, throated.

Distribution.—Australia (except southern Victoria and south-western Australia).

Notes.—Also called Black-throated Butcher-bird, Black-throated Crow-shrike, and Organ-bird. Usually in isolated pairs. It possesses the most musical flute-like notes of any of our birds, heard at their best at break of day. An attractive bird in addition to its song, and somewhat retiring in its habits. It will defend its nest vigorously, a habit of all Butcher-birds. Food: insects, principally beetles and crickets; also mice, reptiles, and small birds.

Nest.—An open and fairly deep structure, composed of sticks and twigs; lined with dried grasses and rootlets. Usually built in the upright forked branch of a tree up to 40 feet from the ground. Favourite nesting trees are gums and oaks.

Eggs.—Three to five, usually four, greyish-green, pale olive, or pale brown, spotted and blotched or thinly freckled with darker shades of the ground colour, or with shades of brown and some black spots, often with well-defined caps at the larger end. Breeding-season: August to December or January.

6. Western Magpie *Gymnorhina dorsalis* Campbell

Gym-no-rhīn'-a—Gk, *gymnos*, bare; Gk, *rhīs* (*rhinos*), nose: *dors-ā'-lis*—L., *dorsalis*, backed.

Distribution.—South-western Australia.

Notes.—Similar in habits to the Black-backed Magpie.

Nest.—A large, bowl-shaped structure, composed of sticks and twigs; lined with bark, grass, wool, hair, or fur. Usually placed at heights up to 40 feet or more from the ground.

Eggs.—Three to five, four being the usual clutch. A typical clutch is pale bluish-white, almost obliterated with smudges and blotches of umber, brownish-red, and pale purplish-slate. Breeding-season: July to February.

7. White-backed Magpie *Gymnorhina hypoleuca* Gould

hy-po-lēūc'-a—Gk, *hypo*, under; Gk, *leucos*, white.

Distribution.—Southern Australia (except south-western portion), central Australia, and Tasmania; introduced into New Zealand.

Notes.—Similar in habits to the Black-backed Magpie.

Nest.—Similar to that of the Black-backed Magpie.

Eggs.—Similar to those of the Black-backed Magpie.

8. Black-backed Magpie *Gymnorhina tibicen* Latham

tī-bī'-cen—L., *tibicen*, a flute-player.

Distribution.—Australia (except southern Victoria and south-western Australia); introduced into New Zealand.

Notes.—Also called Piping Crow-shrike, Varied Crow-shrike, Organ-bird, Flute-bird, and Singing White Crow. Few birds are better known than the Magpies, either in a wild state or in captivity. The Black-backed Magpie, like other Magpies, shows a preference for open forest country, partly cleared lands, and cultivation paddocks. It is very useful in destroying all manner of insect pests. Its song is a delightful carol of melodious flute-like notes heard at its best in the early morning; this is one of the outstanding bird songsters of the world. It will protect its home vigorously, inflicting severe punishment on an intruder.

Nest.—A deep, bowl-shaped structure, composed of sticks and twigs; neatly lined with fibrous roots, coarse grasses, bark-fibre, cow-hair, wool, or other soft material. Usually built in an upright forked branch of a tall tree, at heights up to 60 feet from the ground.

Eggs.—Three to five, usually four; the ground colour varies from greenish-blue to dull bluish-white, or from reddish-grey to dull brown, almost obscured with streaks, scratches, and smears of reddish or chestnut-brown, and underlying markings of darker shades of the ground colour. Breeding-season: July to February.

9. White-winged Chough *Corcorax melanorhamphus* Vieillot

Cor'-cor-ax—Gk, *corax*, crow, raven: *mel'-an-o-rham'-phus*—Gk, *melas* (*melanos*), black; Gk, *rhamphos*, bill.

Distribution.—Southern Queensland, New South Wales, Victoria, and South Australia.

Notes.—Also called Jackdaw, Black Magpie, Black Jay, Apostle-bird, and Mutton-bird. Usually in small flocks; it spends most of its time on the ground, and when disturbed, rises with harsh grating cries of alarm. Hops about in the trees from limb to limb, spreading and elevating its tail in a peculiar manner. The call-note is a low mournful whistle. Food: chiefly insects and their larvæ; occasionally soft cultivated fruits.

Nest.—A large, bowl-shaped structure, composed of mud reinforced with grass; lined with fur, dried grasses, strips of bark-fibre, or wool. Usually built on a horizontal branch of a tree, at various heights from the ground. Generally three or more birds help in the construction of the nest, while two females may lay in the same nest.

Eggs.—Five to seven, sometimes nine, pale creamy-white, spotted and blotched with olive-brown, blackish-brown, and slate-grey markings. Breeding-season: August to December.

10. Black-winged Currawong (Bell-magpie) *Strepera melanoptera* Gould

Strep'-er-a—L., *strepere*, to make a noise: *mel'-an-op'-tera*—Gk, *melas* (*melanos*), black; Gk, *pteron*, wing.

Distribution.—North-western Victoria (Mallee), South Australia, and Kangaroo Island.

Notes.—Usually singly or in pairs; frequents timbered country in the breeding-season, and in the autumn and winter months more open areas. Call-note, a loud ringing whistle, usually uttered while on the wing. Food: chiefly insects; it is also destructive in orchards.

Nest.—A large, open structure, composed of sticks; lined with bark and grasses. Usually built in perpendicular forks near the extremity of a branch—a very difficult nest to get at.

Eggs.—Two or three, varying from a pale buffy-white to rich vinous-brown, freckled, streaked, and blotched with shades of brown; some have the markings uniform, in others they predominate at the larger end, often forming a cap. Breeding-season: September and October.

11. Black Currawong *Strepera fuliginosa* Gould

fū-tī'-gin-ō'-sa—L., *fuliginosus*, sooty.

Distribution.—Tasmania and King Island (Bass Strait).

Notes.—Also called Sooty Crow-shrike, Black Magpie, and Black Jay. Usually in flocks; it is bold and inquisitive and incessantly noisy. It is considered a pest, doing considerable damage in gardens and orchards; it also eats chickens and ducklings.

Nest.—A large, open structure, composed of sticks; lined with rootlets and grass. Usually built in an upright forked branch of a tall tree.

Eggs.—Two or three, purplish-buff, spotted and blotched with dull purplish-brown and reddish-brown shades, closer together at the larger end. Breeding-season: September to December.

12. Clinking Currawong *Strepera arguta* Gould

ar-gū'-ta—L., *argutus*, clear-voiced.

Distribution.—Tasmania.

Notes.—Also called Hill Crow-shrike, Mountain Magpie, and Black Jay. Usually in small parties during the breeding-season; congregates in large flocks in autumn and winter. Frequents the hilly country chiefly, and is the largest of the group; it derives its name from its call, a loud ringing series of notes "Clink, clink," or "Kling-clang." Food: insects chiefly, and native fruits and berries.

Nest.—A round, deep, cup-shaped structure, composed of sticks; lined with fibrous roots and other fine materials. Generally placed on a horizontal branch of a tree at various heights from the ground.

Eggs.—Usually three, varying from dull vinous-white to vinous-grey, streaked, spotted, or irregularly blotched with pale brown, and other underlying markings of bluish-grey. Breeding-season: August to December.

13. Grey Currawong *Strepera versicolor* Latham

ver'-si-col-or—L., *versicolor*, different coloured.

Distribution.—Eastern and southern Australia.

Notes.—Also called Grey Crow-shrike, Grey Magpie, Rain-bird, and Squeaker. In the breeding-season it is met with in small flocks, but congregates in large flocks during autumn and winter. In habits it is similar to the other Currawongs. Food: insects, chiefly procured on the ground; also native fruits and berries.

Nest.—Similar in structure and size to those of the other Currawongs.

Eggs.—Two or three, varying from pale buff and chocolate-brown to rich vinous-brown and vinous-grey, with freckles, streaks, and small blotches of darker shades of the ground colour. Breeding-season: September to December.



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14. Pied Currawong *Strepera graculina* Shaw

grac-u-li'-na—L., *graculinus*, like a graculus, jackdaw.

Distribution.—Eastern Australia and Lord Howe Island.

Notes.—Also called Pied Crow-shrike, Black Magpie, and Mutton-bird. Congregates in flocks, small or large, according to the seasons of the year. Frequents all classes of country, its movements being influenced by the food-supply available; derives its name from its call, "Curra-wong—curra-wong—curra-wack." It is one of our worst bird pests; apart from the damage it does in orchards and in spreading the prickly pear, it destroys countless numbers of useful species of birds, eating both their eggs and young.

Nest.—A large, open, roughly formed structure, composed of twigs and sticks; lined with rootlets, bark-fibre, and other fine materials. Usually built in an upright or leaning forked branch of a tall tree, generally in inaccessible positions.

Eggs.—Two to four, usually three, varying from pale brown to pale vinous-brown, faintly freckled, blotched, or streaked with darker shades of the ground colour. Breeding-season: September to January.

15. Brown Currawong *Strepera intermedia* Sharpe

in-ter-med'-i-a—L., *intermedius*, intermediate.

Distribution.—South Australia (Port Lincoln).

Notes.—This is an intermediate form between the Black-winged Currawong and the Grey Currawong, with habits similar to both species.

Nest.—Similar to those of the above two species.

Eggs.—Similar to those of the above two species.

16. Raven *Corvus coronoides* Vigors and Horsfield

Cor'-vus—L., *corvus*, crow: *cor-on-oid'-ēs*—Gk, *corone*, raven; *-oides*, from Gk, *eidos*, form = like.

Distribution.—Eastern Australia to as far north as Rockhampton, southern Australia to Perth, and Tasmania.

Notes.—In the breeding-season it is usually in pairs, but in the autumn and winter it is gregarious. Prefers open country where it spends most of the day, returning to the timbered areas at dusk. It is a particularly wary bird and difficult to approach. It is exceedingly destructive during the lambing-season, picking out the eyes of lambs. The call-note, usually uttered when in flight, is a loud and deep "Gwar-gwar-gwar-r," varied with a shrill "Korr-korr." This species is omnivorous, but prefers the flesh of animals; it also destroys large numbers of insects.

Nest.—A large, open, rather deep structure, composed of sticks and twigs; lined with strips of bark, grasses, hair, and wool. Usually placed in the forked branches of a tall tree.

Eggs.—Four to six, pale green or bluish white, freckled, spotted, and blotched with blackish-brown and light umber, the markings being larger and more plentiful at the larger end. Breeding-season: August to December.

17. Little Crow *Corvus bennetti* North

bennetti—Kenric H. Bennett, ornithologist and collector, Riverina, New South Wales.

Distribution.—Northern and central Australia and the interior generally.

Notes.—Also called Small-billed Crow. Usually in pairs or small parties; it is not destructive, feeding chiefly on insects and small reptiles, to which are added seeds and berries. The call-note is "Car," repeated six or eight times.

Nest.—Similar to that of the Raven, but usually placed in a scrub tree away from the creek timber.

Eggs.—Four or five to six or seven, pale greenish-grey, speckled and uniformly spotted all over with blackish-brown and olive-brown markings. Breeding-season: August to November.

18. Crow *Corvus cecilæ* Mathews

cecilæ—from the name of a relative of Gregory M. Mathews.

Distribution.—Tropical northern Australia, Dirk Hartog Island, central Australia, South Australia, Queensland, and north-eastern New South Wales.

Notes.—Also called Hazel-eyed Crow. In the breeding-season it is met with in isolated pairs, but congregates in flocks during autumn and winter. Frequents alike mountain ranges and belts of timber bordering inland rivers and creeks. Food: carrion, insects, young birds, and eggs; also cultivated fruits of all kinds. Useful in keeping down the blow-fly pest. It is often mistaken for the Raven and blamed for killing lambs. Crows are distinguished from the Raven in having the bases of the feathers on the upper-parts white and dusky-grey, those of the Raven being black.

Nest.—Similar in construction and situation to that of the Raven.

Eggs.—Four to five, sometimes six; a typical clutch is pale greenish-grey, speckled, spotted, and blotched with blackish-brown and olive-brown markings. Breeding-season: August to January.

PLATE IX

BIRDS OF THE OPEN FOREST

1. Black-faced Cuckoo-shrike *Coracina novæ-hollandiæ* Gmelin

Cor-a-cī'-na—Gk, *coracinos*, raven-like: *novæ-hollandiæ*—of New Holland.

Distribution.—Australia generally, and Tasmania; accidental to New Zealand; also occurs in the Celebes, Timor, Molucca Islands, and New Guinea.

Notes.—Also called Blue Jay, Summer-bird, Blue Pigeon, Lapwing, Cherry-hawk, Leatherhead, and Jay. Usually in pairs or small flocks, inhabiting open forest-lands chiefly. It is partly nomadic, being observed less in the winter than in the summer. Its flight is undulating and powerful; it is seldom seen upon the ground. The call is a strange rattle of flute-like notes often uttered while in flight. Food: large insects and their larvæ, procured among the leaves of the trees; also berries.

Nest.—A small, nearly flat structure, composed of fine twigs, grass, bark-fibre, plant-stems or leaves, and fibrous rootlets, bound together with cobwebs. Some nests are decorated on the outside with small pieces of bark. Usually built in the angle of a forked horizontal branch of a tree.

Eggs.—Usually three, olive-green to pale olive-brown, spotted, chiefly on the larger end, with different shades of umber and chestnut-brown, and underlying spots of dull grey. Breeding-season: August to January (New South Wales); February, March, and July (Queensland).

2. White-breasted Cuckoo-shrike *Coracina hypoleuca* Gould

hy-po-lēūc'-a—Gk, *hypo*, under; Gk, *leucos*, white.

Distribution.—Northern tropical Australia; also occurs in the Aru Islands, New Guinea, and the Solomon Islands.

Notes.—Usually in pairs or small flocks, inhabiting open forest country. It is very similar in habits and economy to the Black-faced Cuckoo-shrike.

Nest.—A small, nearly flat structure, composed of grass and fine twigs, bound together with cobwebs. Usually built in the angle of a forked horizontal branch of a tree.

Eggs.—Usually two, bluish-green, blotched with different shades of brown, and underlying markings of purplish-grey. Breeding-season: October to January.

3. Little Cuckoo-shrike *Coracina robusta* Latham—3A. Immature.
rō-bus'-ta—L., *robustus*, strong.

Distribution.—Southern Queensland, New South Wales, Victoria, and South Australia.

Notes.—Also called Varied Graucalus and Lesser Blue Jay. Usually in pairs, frequenting the tall trees of the open forests. It appears to be nomadic in habits. Its call, "Kiseek, kiseek," cannot possibly be mistaken for that of any other species. Food: insects and their larvæ, procured among the branches or on the wing.

Nest.—A small, nearly flat structure, composed of grass, twigs, and other materials, bound together with cobwebs. Usually built in the angle of a forked horizontal branch of a tree, at a considerable height from the ground.

Eggs.—Two or three, various shades of green, blotched with different shades of brown, with underlying markings of purplish-grey. Breeding-season: August to December.

4. Papuan Cuckoo-shrike *Coracina papuensis* Gmelin
papuensis—of Papua or New Guinea.

Distribution.—Northern Queensland, also occurs in the Molucca Islands, Papuan Islands, and New Guinea.

Notes.—Usually in pairs, frequenting the open forest country and mangroves. Resembles the other Cuckoo-shrikes in habits and economy.

Nest.—Resembles that of the White-breasted Cuckoo-shrike.

Eggs.—Resemble those of the White-breasted Cuckoo-shrike.

5. Gascoyne Cuckoo-shrike *Coracina gascoynensis* Ashby
gascoynensis—Gascoyne River, Western Australia.

Distribution.—Gascoyne River (mid-western Australia).

Notes.—Resembles the Black-faced Cuckoo-shrike in habits, frequenting similar classes of country.

Nest.—Not recorded.

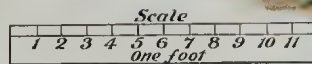
Eggs.—Not recorded.

6. Barred Cuckoo-shrike *Coracina lineata* Swainson
lin-e-ā'-ta—L., *lineatus*, lined.

Distribution.—Eastern Queensland and New South Wales.

Notes.—Also called Swainson's Cuckoo-shrike. Usually in pairs, frequenting open forest and scrub-lands. It appears to be nomadic in northern New South Wales, where it is most common in September or October, but is rarely seen during the autumn or winter months. It is often observed with other species feeding upon different kinds of wild figs, other native fruits, and berries.

Nest.—A shallow, open structure, composed of fine twigs and rootlets,



BIRDS OF THE OPEN FOREST

bound together with cobwebs. Built in the horizontal fork of a tree up to 40 feet or more from the ground.

Eggs.—Usually two, white, spotted (more so at the larger end where a zone is formed) with various shades of brown and purplish-grey. Breeding-season: October to January.

7. Ground Cuckoo-shrike *Pteropodocys maxima* Ruppell

Pter'-o-pod-ō'-cys—Gk, *pteron*, wing; Gk, *podocys*, swift-footed: *max'-im-a*—L., *maximus*, greatest.

Distribution.—Australia (except the north-western area).

Notes.—Usually in pairs or small parties, chiefly frequenting the sparsely timbered areas of the inland districts. It spends a good deal of its time on the ground over which it moves rapidly; when flushed, its flight is undulating. Generally when disturbed it flies to the nearest timber; as a rule it is shy and cautious. It has a peculiar, plaintive, rippling call-note, usually uttered while on the wing, also another note which is a prolonged, harsh cry. Food: insects and their larvæ.

Nest.—A saucer-shaped structure, composed of grass, plant-stems, rootlets, or wool, bound together with cobwebs; lined with fine grass. Usually placed in a horizontal forked branch of a tree, at heights up to 70 feet from the ground.

Eggs.—Usually three, dull asparagus-green, more or less obscured by numerous indistinct fleecy markings of olive-brown. Breeding-season: August to December.

8. Blue-winged Kookaburra *Dacelo leachi* Vigors and Horsfield

—8A. Female

Da-cē'-lo—anagram of *alcedo*, L., *alcedo*, *inis*, kingfisher: *leachi*—Dr W. E. Leach (1790-1836), Keeper of Zoology, British Museum.

Distribution.—North-western and mid-western Australia, Northern Territory, and Queensland; also occurs in New Guinea.

Notes.—Also called Leach's Kingfisher, Blue-rumped Kingfisher, Howling Jackass, and Queensland Kookaburra. Usually in pairs, inhabiting open forest country. It is similar in habits and economy to the Laughing Kookaburra.

Nest.—In a hollow limb or hole in a tree.

Eggs.—Three or four, pure white. Breeding-season: September to November.

9. Laughing Kookaburra *Dacelo gigas* Boddaert

gī'-gas—Gk, *gigas*, giant.

Distribution.—Eastern and southern Australia; introduced to Western Australia and Tasmania.

Notes.—Also called Brown Kingfisher, Great Kingfisher, Giant Kingfisher, Laughing Jackass, Bushman's Clock, and Settler's Clock. Usually

in pairs or small parties, chiefly frequenting open forest-lands. Its extraordinary laughing notes are a constant delight to all bird lovers, and are heard at their best in the early morn or just after sunset. It is not uncommon in parks and gardens. Food: small reptiles, insects and their larvæ, and crabs. It also robs the nests of other birds of their young, and occasionally preys on chickens.

Nest.—In a hollow limb, in a hole in a tree, or in a termites' nest in a tree.

Eggs.—Two to four, pure white. Breeding-season: September to December or January.

10. Apostle-bird *Struthidea cinerea* Gould

Struth-id'-e-a—Gk, *strouthos*, bird; Gk, *eidōs*, form: *cin-er'-e-a*—L., *cinereus*, ashen.

Distribution.—Northern Territory and the interior of Queensland, New South Wales, and Victoria.

Notes.—Also called Grey Jumper and Twelve Apostles. Usually in small flocks, comprised of twelve or more birds, chiefly frequenting the open forest-lands. It is generally observed feeding on the ground over which it hops in a rather quaint manner. When disturbed, it flies to the lower branches of a nearby tree, ascending from branch to branch by a series of leaps, uttering harsh, grating cries the while. It often establishes itself near homesteads, and soon becomes fearless. Food: insects and seeds.

Nest.—A basin-shaped structure, composed of mud, bound together and reinforced with grass; usually lined with very fine grass. Generally placed on a horizontal limb of a tree at heights up to 40 feet or more from the ground. This species is a communal nest-builder.

Eggs.—Five to eight, pale bluish-white, sparingly marked with brush-like streaks of blackish-brown and dull purplish-grey, the markings usually being thicker about the larger end. Breeding-season: August to December.

11. Channel-billed Cuckoo *Scythrops novæ-hollandiæ* Latham

Scy'-throps—Gk *scythros*, sullen (faced): *novæ-hollandiæ*—of New Holland.

Distribution.—Australia (except the south-western and mid-western areas); accidental to Tasmania; also occurs in the Celebes, Flores, Molucca, and Aru Islands, and in New Guinea.

Notes.—Also called Fig-hawk, Hornbill, Toucan, Giant Cuckoo, Storm Cuckoo, Flood-bird, and Rain-bird. Observed singly, in pairs, or in small flocks, frequenting alike open forest and scrub-lands. It is a migrant, usually arriving in south-eastern Australia during September or October, departing again in March. Its loud, awesome, screaming call, difficult to describe, is uttered both in flight or when perched. Food: insects, native fruits, and berries.

Parasitic—recorded foster-parents number five species, chiefly Currawongs and Crows.

Egg.—Dull white to pale yellowish-brown, spotted and blotched, particularly at the larger end, with brown and lavender. Breeding-season: October to December or January (south-eastern Australia).

12. Stone-curlew *Burhinus magnirostris* Latham

Bu-rhīn'-us—Gk, *bu* (*bou*), big; Gk, *rhynchos* (*rhugchos*), beak: *mag-ni-ros'-tris*—L., *magnus*, great; L., *rostrum*, bill.

Distribution.—Australia generally, accidental to Tasmania.

Notes.—Also called Stone-plover, Curlew, Thick-knee, Scrub Curlew, and Willaroo. Usually in pairs, frequenting open forest country, and plains intersected with belts of timber. Generally it is shy and cautious, and when disturbed, flies off as an intruder approaches. Occasionally it will remain quite stationary, either in an upright position, or else crouched near the ground, relying on its protective coloration to help it escape being detected. Its familiar call, "Ker-loo" or "Koo-loo," is weird and melancholy, and is mostly uttered after nightfall, when the bird is dancing, especially on moonlight nights. Food: insects and their larvæ.

Nest.—None, the eggs being deposited in a slight depression in the grass or on the bare ground.

Eggs.—Usually two, varying greatly in the ground-colour; typical eggs are light yellowish-stone or yellowish-grey, more or less obscured with spots and blotches of light brown, dull umber, and some underlying markings of inky-grey. Breeding-season: August to January.

PLATE X

BIRDS OF THE OPEN FOREST

(Some Permanent Residents)

1. Robust Whistler *Pachycephala robusta* Masters—1A. Female
Pach'-y-ceph-al-a—Gk, *pachys*, thick; Gk, *cephale*, head: *rō-bus'-ta*—L.,
robustus, strong.

Distribution.—Tropical northern Australia, from Parry Harbour (north-western Australia) to Cape York (northern Queensland).

Notes.—Also known as the Big-billed Whistler and Big-billed Thick-head. It is found chiefly in the coastal districts and on all the islands along the coast on which there is any scrub. Its call-notes are similar to those of the other Yellow-breasted Whistlers. Food: insects.

Nest.—Cup-shaped, composed of rootlets held together with cobwebs; lined with fine rootlets. Usually built in an upright fork of a tree.

Eggs.—Two or three, stone or buff-coloured, spotted with dark brown or umber, with a well-defined zone at the larger end. Breeding-season: November and December.

2. Black-tailed Whistler *Pachycephala melanura* Gould—2A. Female
mel'-an-ur'-a—Gk, *melas* (*melanos*), black; *ura* (*oura*), tail.

Distribution.—North-western Australia, from Point Cloates to Derby.

Notes.—Mostly found in coastal forests and mangrove swamps. This species is placed here for comparison with the Robust Whistler, with which it has long been confused. It is very inquisitive, searching for insects in debris left by the tides. Call-note similar to, but less powerful than that of the Robust Whistler.

Nest.—Cup-shaped, composed of coarse rootlets; lined with finer rootlets, and lightly covered outside with cobwebs. Usually built in an upright fork of a mangrove tree.

Eggs.—Two, whitish, spotted with chestnut and underlying spots of lavender, with a heavy zone of reddish-brown at the larger end. Breeding-season: December (to March?).

3. Hooded Robin *Melanodryas cucullata* Latham—3A. Female
Mel'-an-o-dry'-as—Gk, *melas* (*melanos*), black; Gk, *dryas*, a dryad:
cu-cul-la'-ta—L., *cucullatus*, hooded.

Distribution.—Australia generally (except northern Queensland).



BIRDS OF THE OPEN FOREST (SOME PERMANENT RESIDENTS)

Notes.—Also called Black-and-white Robin, Black Robin, and Pied Robin. Usually in pairs; the conspicuous plumage of the male attracts attention; it is unobtrusive in habits, with a feeble call-note. Food: insects, mostly procured on the ground.

Nest.—Cup-shaped, composed of fine rootlets, bark, and grass, bound together with cobwebs; lined with very fine rootlets; occasionally decorated with strips of bark. Usually built in an upright fork of a tree up to 12 feet from the ground.

Eggs.—Two or three, pale olive to apple-green, more or less clouded with rich brown, particularly at the larger end. Breeding-season: August to December.

4. Southern Yellow Robin *Eopsaltria australis* Shaw

E-op-sal'-tri-a—Gk, *eos*, dawn; Gk, *psaltria*, harper ("Dawn-singer"); *australis*—L., *australis*, southern (Australian).

Distribution.—Eastern and south-eastern Australia.

Notes.—Also called Yellow-breasted Shrike-robin, Yellow Bob, Bark Robin, and Yellow-hammer. A friendly bird and easily tamed; one of the earliest birds to awaken and one of the last to go to roost. It has a habit of perching sideways on a tree-trunk. Call-note, a pleasing continuous piping, heard at its best at dawn and dusk. Food: insects and their larvæ.

Nest.—Cup-shaped, composed of grass-stems and rootlets joined with cobwebs; lined with finer rootlets; beautifully decorated on the outside with strips of bark and pieces of lichen. Often built in an upright or horizontal fork, and sometimes on a horizontal branch of a low tree, frequently within hands' reach from the ground.

Eggs.—Two or three, pale apple-green to greenish-blue, spotted and blotched with reddish or chestnut-brown and paler markings. Some eggs are evenly marked, others have a well-defined zone or cap at the larger end. Breeding-season: July to January.

5. Little Yellow Robin *Eopsaltria kemp* Mathews

kemp—Robin Kemp, British collector, who has done field-work in Australia.

Distribution.—Northern Queensland, from Cape York to Claudie River.

Notes.—Has the habits of a Flycatcher, making short flights from branch to branch and occasionally into the air to capture insects, uttering the while a continuous subdued piping call, resembling "Zzt, zzt, zzt."

Nest.—Not described.

Eggs.—Not described.

6. Western Yellow Robin *Eopsaltria griseogularis* Gould

gris'-e-o-gu-la'-ris—L., *griseus*, grey; L., *gularis*, throated.

Distribution.—South-western and South Australia, from the Wongan Hills to Eyre's Peninsula.

Notes.—Also known as the Grey-breasted Robin and Grey-breasted Shrike-robin. It is similar in habits to the Southern Yellow Robin.

Nest.—Similar to that of the Southern Yellow Robin.

Eggs.—Two or three, varying from dull apple-green to pale yellowish-green, spotted or blotched with shades of chestnut, red, or brown; some have a well-defined zone at the larger end. Breeding-season: August to October.

7. Jacky Winter (Brown Flycatcher) *Microæca fascians* Latham
Micro-æc'-a—Gk, *micros*, small; *oikos*, house: *fas'-ci-nans*—L., *fascians*, fascinating.

Distribution.—Australia generally.

Notes.—Also called Peter-Peter, Post-boy, Post-sitter, White-tail, Stump-bird, and Spinks. A general favourite, friendly and confiding; it frequents gardens, orchards, and parks. It has a sweet and melodious song, and in addition utters a call resembling "Pretty, pretty, pretty; peter, peter, peter," or "You did, you did, you did." Ever on the move, with its tail swaying from side to side. Food: insects of various kinds, captured on the wing or on the ground.

Nest.—A small, saucer-shaped structure about $2\frac{1}{2}$ inches wide by $\frac{1}{2}$ inch deep, composed of fine grass mixed with horse-hair, pieces of bark, and lichen. Generally built into the angle of a forked horizontal dead branch of a tree up to 70 feet from the ground, and fastened with cobwebs.

Eggs.—Usually two, greenish-blue, spotted and blotched with purplish-brown and underlying markings of greyish-lilac; some have well-defined zones at the larger end. Breeding-season: August to December.

8. Lemon-breasted Flycatcher *Microæca flavigaster* Gould
flāv-i-gas'-ter—L.,—*flavus*, yellow; Gk, *gaster*, belly.

Distribution.—Northern Territory and northern and north-eastern Queensland; also occurs in New Guinea.

Notes.—Similar in habits to the Jacky Winter, but soars in circles like a singing Skylark.

Nest.—A very small, saucer-shaped structure about $1\frac{1}{2}$ inches across by $\frac{1}{2}$ inch deep, composed of fibrous bark and grass, bound together with cobwebs. Usually built into the fork of a dead horizontal limb.

Egg.—Faint blue, finely dotted all over with pale purplish-red. Breeding-season: October to January.

9. Brown-tailed Flycatcher *Microæca brunneicauda* Campbell
brun'-ne-i-cāūd'-a—L., *brunneus*, brown; L., *cauda*, tail.

Distribution.—North-western Australia and Northern Territory.

Notes.—This species is uncommon; it frequents open forests and also mangroves, where it conceals itself in the thickest growths, living on insects, small crabs, and other forms of marine-life. The call-notes are loud and closely resemble those of the Yellow-faced Honey-eater.

Nest.—A small, open structure, composed of bark and pieces of leaves bound together with cobwebs; generally placed on a branch of a mangrove tree.

Egg.—Pale bluish-grey, spotted all over with chestnut and underlying markings of purple, particularly at the larger end, where an irregular zone is formed. Breeding-season: October.

10. Northern Shrike-tit *Falcunculus whitei* Campbell

Fal-cun'-cu-lus—L., *falcunculus*, little falcon: *whitei*—H. L. White, Bell-trees, Scone, New South Wales.

Distribution.—North-western Australia and Northern Territory.

Notes.—Similar in habits to the Eastern Shrike-tit, but difficult to locate because of its subdued notes.

Nest.—A compact, deep, cup-shaped structure, composed of strips of stringy-bark, matted together with cobwebs; lined with grass and thin strands of fine bark. Usually built near the top of the tallest upright branches of a gum sapling up to 50 feet from the ground.

Eggs.—Two, white, finely marked with spots of dark olive, with underlying markings of pale grey. Breeding-season: August to January or February.

11. Eastern Shrike-tit *Falcunculus frontatus* Latham

front-ā'-tus—L., *frontatus* (*frons*), with conspicuous forehead.

Distribution.—Eastern and south-eastern Australia.

Notes.—Also called Bark-tit, Yellow-hammer, Frontal Shrike-tit, and Falcon-shrike. Plentiful in tall timber and saplings. Usually in pairs or small parties; by no means shy, as it fearlessly searches for food. Does great service in orchards, eating codlin moths, cockchafer beetles, and other pests. The "Knock-at-the-door, knock-at-the-door" call is frequently uttered; in addition it has a succession of sweet and high-pitched call-notes.

Nest.—Similar to that of the Northern Shrike-tit. Before building, these birds break the green bark with their strong bills; the sun then causes the broken bark to curl back, thus forming hooks which help to hold the nest in position.

Eggs.—Two to three, white, marked with minute spots of dark olive and pale grey. Breeding-season: August to January.

12. Western Shrike-tit *Falcunculus leucogaster* Gould

lēūc-o-gas'-ter—Gk, *leucos*, white; Gk, *gaster*, belly.

Distribution.—South-western Australia only.

Notes.—Similar in habits to the Eastern Shrike-tit. Hangs from slender twigs like a Honey-eater in search of insects, and tears off loose strips of bark under which spiders spin their cocoons. Call-note, a single "Ko" or "Koo," very softly uttered. Another description is a plaintive whistling note like a faint "Poo-oo-pee-e."

Nest.—Similar to that of the Northern Shrike-tit.

Eggs.—Two or three, white, marked with dark olive and grey markings, which form a zone at the larger end. Breeding-season: August to January.

13. Grey Shrike-thrush *Colluricincla harmonica* Latham

Coll-u-ri-cinc'-la—Gk, *collurion*, shrike; Gk, *cinclos* (*kigklos*), bird (thrush): *har-mon'-i-ca*—L., *harmonicus*, harmonious.

Distribution.—Eastern and south-eastern Australia (from Cape York to South Australia), Kangaroo Island, and Tasmania.

Notes.—Also called Harmonious Thrush, Native Thrush, Pluff, Mourner, and Whistling Dick. A friendly and useful bird, easily tamed. Well named *Harmonica*, being a charming whistler with a fine repertoire of liquid notes. Food: chiefly insects.

Nest.—A large, cup-shaped structure, composed of long strips of bark, wiry roots, and grass; neatly lined with fine rootlets and grass. Built in a variety of situations such as hollows in tops of stumps and broken-off branches, in burnt-out hollows in trees, and in upright forks.

Eggs.—Three or four, pearly-white or creamy-white, spotted and blotched with dark olive, olive-brown, and pale grey markings. Breeding-season: August to December.

14. Brown Shrike-thrush *Colluricincla brunnea* Gould

brun'-ne-a—L., *brunneus*, brown.

Distribution.—North-western Australia, from Roebuck Bay through the Northern Territory to Leichhardt River (north-western Queensland).

Notes.—Similar in habits to the Grey Shrike-thrush.

Nest.—An open, cup-shaped structure, composed of strips of bark and leaves; lined with leaves. Usually placed in an old stump, or in a cleft in a wall of sandstone.

Eggs.—Three or four, varying in shape and size, white, spotted and blotched with light olive-brown and pale slate markings, chiefly at the larger end. Breeding-season: September to November or December.

15. Little Shrike-thrush *Colluricincla parvula* Gould

par'-vu-la—L., *parvulus*, very small.

Distribution.—North-western Australia, from Arnhem Land to Admiralty Gulf (Northern Territory).

Notes.—Inhabits the thickets, also mangroves. It is extremely shy, and is generally seen on or near the ground. Food: insects of various kinds.

Nest.—Cup-shaped, composed of strips of bark, and placed in the hollow of a tree.

Eggs.—Two or three, dull white, finely marked all over with spots and specks of pale to dark olive-brown and dull purplish-grey, heavier at the larger end. Breeding-season: December and January.

16. Western Shrike-thrush *Colluricincla rufiventris* Gould

rū-fi-ven'-tris—L., *rufus*, red; L., *venter*, belly.

Distribution.—Mid-western and South Australia, from North-west Cape to Eyre's Peninsula.

Notes.—Also known as the Buff-bellied Shrike-thrush. Some birds are very shy, others are fearless. It has several distinct songs, one of which is loud and musical though not so melodious as that of the Grey Shrike-thrush. Food: insects.

Nest.—An open, cup-shaped structure, composed chiefly of strips of bark, and generally placed in the hollow of a dead stump or fork of a tree.

Eggs.—Two or three; very similar to those of the Grey Shrike-thrush. Breeding-season: September to November; also breeds in March and April.

17. Brown-breasted Shrike-thrush *Colluricincla woodwardi* Hartert
woodwardi—B. H. Woodward, a former director of Perth Museum, Western Australia.

Distribution.—North-western Australia and Northern Territory.

Notes.—Keeps to the rocky open forest country; it is extremely shy as it flies or hops from rock to rock. Call-notes, loud and clear. Food: insects, mostly secured on the ground.

Nest.—A cup-shaped structure, composed entirely of the reddish-brown roots of spinifex (*Triodia*), and usually placed in cracks or holes in sandstone cliffs.

Eggs.—Two or three, pearly-white or creamy-white, spotted and blotched with brownish-black, brown, and slate-grey markings, principally at the larger end. Breeding-season: December.

18. Northern Fantail *Rhipidura setosa* Quoy and Gaimard

Rhip-id-ūr'-a—lit., fantail, Gk, *rhipis*, *rhipidos*, fan; Gk, *ura* (*oura*), tail: *sē-tō-sa*—L., *setosus*, bristly.

Distribution.—Tropical northern Australia; also occurs in New Guinea and the Bismarck Archipelago.

Notes.—Similar in habits to the Grey Fantail.

Nest.—Cup-shaped, with a stem or tail-piece, composed of strips of tea-tree bark, the outside being entirely covered with cobwebs. The tail extends about 2 inches below the bottom of the nest. Built at various heights up to 75 feet.

Eggs.—Two, creamy-white, with a darker shade forming a zone at the larger end. Breeding-season: October to January.

19. Grey Fantail *Rhipidura flabellifera* Gmelin

flā-bell-if'-er-a—L., *flabellum*, fan; L., *fero*, I bear.

Distribution.—Australia generally, and Tasmania; also occurs in New Caledonia, New Hebrides, and New Zealand.

Notes.—Also called White-shafted Fantail, White-shafted Flycatcher, Snapper, Mad Fan, Cranky Fan, Devil-bird, and Land Wagtail. Usually found in pairs. An extremely tame and very restless species, performing all manner of aerial evolutions while seeking its food—chiefly flies. Hence the name “Cranky Fan.” It has a sweet twittering song.

Nest.—Shaped like a wingglass without the base. Composed of dried grasses and shreds of bark bound together with cobwebs; lined with finer materials. The tail-piece varies in length. The nest is usually built on a horizontal limb at various heights from the ground.

Eggs.—Two to four, buff-coloured (some have a zone at the larger end), spotted with rufous and lavender markings. Breeding-season: September to January.

20. Restless Flycatcher *Seisura inquieta* Latham

Sēis-ūr'-a—Gk, *seiein*, to shake; Gk, *ura* (*oura*), tail: *in-qui-ē-ta*—L., *inquietus*, restless.

Distribution.—Australia generally.

Notes.—Also called Scissors Grinder, Grinder, Dishwasher, Crested Wagtail, and often, in error, Willie Wagtail. Usually seen in pairs. It is very confiding and will visit houses, seeking spiders in window frames. Has a loud, harsh call-note which is repeated several times. The peculiar “grinding” notes are mostly uttered while hovering, but sometimes when perched. Very aggressive when its nest is approached. Food: insects of various kinds.

Nest.—Cup-shaped, composed of grasses or fine bark bound together with cobwebs, often decorated with lichen; lined with soft materials. Usually built on the top of a forked horizontal limb up to 60 feet from the ground.

Eggs.—Three or four, white or buff, spotted with umber and lavender markings forming a zone at the larger end. Breeding-season: August to January.

21. Willie Wagtail *Rhipidura leucophrys* Latham

lēūē'-o-phrys—Gk, *leucos*, white; Gk, *phrys* (*phrus*), brow.

Distribution.—Australia generally, accidental to Tasmania; also occurs in the Molucca Islands and New Guinea.

Notes.—Also called Black-and-white Fantail, Shepherd's Companion, Wagtail, Frog-bird, and Morning-bird. In pairs, frequenting open forest, being more numerous in the vicinity of water. It is exceptionally tame, and is a familiar bird in gardens. It has a pleasant call resembling “Sweet pretty little creature,” frequently uttered during the day or night, especially on moonlight nights. Food: insects, chiefly flies, procured on the ground and in the air.

Nest.—A neat, cup-shaped structure, composed of strips of bark bound together with spiders' webs, and held in place on the branch by the same material. Nests are usually built on a horizontal limb of a tree grow-

ing near water, and often in the same tree in which the nest of the Magpie-lark is built; but sometimes in other situations—under verandas, in sheds, and in vines growing about houses.

Eggs.—Three or four, cream to yellowish-brown, with a zone of darker markings on the larger end. Breeding-season: August to December or January.

22. Fan-tailed Cuckoo *Cacomantis flabelliformis* Latham

Cac-o-man'-tis—Gk, *cacos*, bad; Gk, *mantis*, prophet: *flā-bell-i-fōrm'-is*—L., *flabellum*, fan; L., *forma*, shape.

Distribution.—Australia (except north-western Australia and Northern Territory) and Tasmania; also occurs in the Aru Islands.

Notes.—Also called Ash-coloured Cuckoo and Storm-bird. Singly or in pairs, frequenting open forest and scrub-lands. It is a tame and rather lazy bird, allowing one to approach quite near before it takes flight. Its call is a mournful trill of about six notes with a downward inflection, heard more often during the spring and summer months. In the autumn and winter it usually moves nearer the coastal districts. Food: insects and their larvæ.

Parasitic—recorded foster-parents number about forty-five species.

Egg.—Dull white, heavily coloured all over with small spots of purplish-brown, with an ill-defined zone at the larger end. Breeding-season: August to December.

23. Chestnut-breasted Cuckoo *Cacomantis castaneiventris* Gould

cas-tan'-e-i-ven'-tris—L., *castaneus*, chestnut; L., *venter*, belly.

Distribution.—Northern Queensland (Cape York Peninsula); also occurs in the Molucca Islands, Timor, and New Guinea.

Notes.—Usually singly or in pairs, inhabiting the tropical scrubs; placed in this group for comparison with the Fan-tailed Cuckoo. Very little is known of its habits. Food: beetles and other insects.

Parasitic.

Egg.—No authentic record of its egg is known.

24. Rufous-breasted Bronze Cuckoo *Lamprococcyx russatus* Gould

Lam'-pro-coc'-cyx—Gk, *lampros*, bright; Gk, *coccys*, cuckoo: *rus-sā-tus*—L., *russatus*, reddened.

Distribution.—Northern and north-eastern Queensland; also occurs in the Molucca Islands and New Guinea.

Notes.—Usually singly or in pairs, frequenting the open forest and mangroves. Similar in habits to the other Bronze Cuckoos. Usually selects Warblers (*Gerygone*) as foster-parents.

Parasitic—recorded foster-parents number about thirteen species.

Egg.—Light buffy-olive to buffy-olive, minutely freckled with dark brown; the latter colour is more pronounced at either end and is in the form of a narrow band around the pointed end. Breeding-season: September to February.

25. Horsfield Bronze Cuckoo *Chalcites basalis* Horsfield

Chal-cī'-tēs—Gk, *chalchites*, containing bronze: *bas-ā'-lis*—L., *basalis*, based.

Distribution.—Australia generally, and Tasmania; also occurs in Java, the Molucca Islands, and Aru Islands.

Notes.—Also called Narrow-billed Bronze Cuckoo. Usually singly or in pairs, frequenting open forest and heath-lands. It is a migrant to the southern parts of Australia and Tasmania, arriving during the spring, departing at the end of summer. Its call-note is a mournful whistle with a downward inflection. In the breeding-season its call is often uttered at night. Food: insects and their larvæ.

Parasitic.—recorded foster-parents number about sixty-four species, chiefly those that build domed nests near the ground.

Egg.—Pinkish, uniformly spotted all over with small reddish spots. Breeding-season: July to January.

26. Little Bronze Cuckoo *Lamprococcyx minutillus* Gould

min-ū-till'-us—L., *minutillus*, very little.

Distribution.—Northern Australia; also occurs from the Malay Archipelago to New Guinea.

Notes.—Little has been recorded about the habits of this species except that it frequents open forest country and mangroves.

Parasitic.—recorded foster-parents number four species, chiefly Warblers (*Gerygone*).

Egg.—Uniform greenish-olive. Breeding-season: September to February.

27. Shining Bronze Cuckoo *Lamprococcyx lucidus* Gmelin

lū'-cid-us—L., *lucidus*, shining.

Distribution.—Eastern Queensland, New South Wales, Victoria, and Tasmania; also found in New Zealand, Chatham Island, and accidental to Macquarie Island.

Notes.—This is the typical Bronze Cuckoo of New Zealand, where it breeds. On rare occasions specimens have been taken along the eastern coast of Australia and Tasmania; it is believed that this is one of its migratory routes. Food: insects and their larvæ. In the field this bird cannot be distinguished from the Golden Bronze Cuckoo.

Parasitic.—foster-parents, small insectivorous birds.

Egg.—Uniform greenish-olive or bronze-coloured. Breeding-season: spring and summer months.

28. Golden Bronze Cuckoo *Lamprococcyx plagosus* Latham

plā-gō-sus—L., *plagosus*, mournful.

Distribution.—Australia generally, and Tasmania; also occurs in the Pacific Islands.

Notes.—Also called Broad-billed Bronze Cuckoo. Usually singly or in pairs, frequenting, for the most part, open forest-lands. Its call is a series of mournful notes resembling "Pee-e" uttered in succession. This is an extremely useful bird for it destroys large numbers of injurious caterpillars. It is a migrant to the southern parts of Australia; in New South Wales odd birds may be observed during the winter months. Food: insects and their larvæ.

Parasitic—recorded foster-parents number about sixty-four species, chiefly those species that build domed nests.

Egg.—Pale greenish-olive or a distinct bronze-brown; if rubbed with a damp cloth the colouring may be removed, disclosing a pale blue shell. Breeding-season: August to December.

29. Dusky Robin *Amaurodryas vittata* Quoy and Gaimard

Am-āūr'-o-dry'-as—Gk, *amauros*, dark; Gk, *dryas*, dryad: *vīt-tā'-ta*—L., *vittatus*, banded.

Distribution.—Tasmania and the islands of Bass Strait.

Notes.—Also called Stump Robin. Usually in pairs or small parties, frequenting lightly timbered country and clearings around homesteads. It is an active bird and very friendly, being a general favourite with orchardists. Its call-note is low and monotonous. Food: insects and their larvæ.

Nest.—A cup-shaped structure, composed of rootlets, pieces of bark, and grass; lined with fur or horse-hair. Usually placed on the side of a stump, at the end of a log, and occasionally in a tree some height from the ground.

Eggs.—Usually three, apple-green, darker at the larger end, sometimes spotted and blotched with reddish-brown. Breeding-season: July to December.

PLATE XI

BIRDS OF THE OPEN FOREST

(Some Migrants)

1. Rufous Whistler *Pachycephala rufiventris* Latham—1A. Female.*Pach'-y-ceph-al-a*—Gk, *pachys*, thick; Gk, *cephale*, head: *rū-fi-ven'-tris*—L., *rufus*, red; L., *venter*, belly.*Distribution*.—Australia generally.*Notes*.—Also called Rufous-breasted Whistler, Rufous-breasted Thickhead, Ring Coachman, Thunder-bird, Echong, and Little Thrush. Usually in pairs, arriving in early September, departing during February or March. It procures most of its food among the branches of trees. It is one of the first birds to usher in the morn with its loud melodious call like "E-chong-E-chong," followed by a succession of loud rich notes, which are poured forth simultaneously with any loud and sudden noise, like the discharge of a gun or a peal of thunder. Food: chiefly insects; also native fruits and berries.*Nest*.—An open, cup-shaped structure, scantily composed of dried twigs and grasses; lined inside with finer grasses and rootlets. Usually built in an upright forked branch of any suitable tree.*Eggs*.—Two or three, dull olive to olive-brown, freckled, spotted, and blotched with shades of brown, often forming a zone at the larger end. Breeding-season: September to January.**2. White-winged Triller** *Lalage tricolor* Swainson—2A. Female*Lal'-a-ge*—*Lalage*, girl's name (classical): *tri-col-or*—L., *tricolor*, three-coloured.*Distribution*.—Australia generally, and New Guinea; accidental to Tasmania.*Notes*.—Also called White-shouldered Caterpillar-eater and Peewee-lark. Usually in pairs, arriving in September, departing during February. It has a melodious song, the "Jocy-jocy" notes are uttered while flying from tree to tree. Some years it is very plentiful, generally coinciding with the years that cicadas are numerous. Food: insects and their larvæ, chiefly procured among the leaves of trees.*Nest*.—A small, open, shallow structure, composed of very fine rootlets and dried grasses woven together with cobwebs; sometimes decorated on the outside with pieces of bark and spiders' egg-bags. Usually placed in a horizontal fork of a tree; some are placed in upright forks, when, as a rule, they are larger (deeper).

Eggs.—Usually three, light or rich bluish-green, heavily blotched with reddish or chestnut-brown markings, which sometimes obscure the ground colour. Breeding-season: September to January.

3. Varied Triller *Lalage leucomela* Vigors and Horsfield—3A. Female
lēūc-o-mel'-a—Gk, *leucos*, white; Gk, *melas* (*melanos*), black.

Distribution.—Tropical Australia and the coastal districts of eastern Queensland and north-eastern New South Wales.

Notes.—Also called the Pied Caterpillar-eater and White-eyebrowed Caterpillar-eater. Mostly stationary, but in New South Wales it is a migrant; arrives during October and departs in February or March. Seen mostly in pairs; much shyer in habits than the White-winged Triller, its song is similar, but much softer, some of the notes resembling those of the Cicada-bird. Food: insects and their larvæ; also certain native fruits and berries.

Nest.—A small, shallow, saucer-shaped structure, composed of plant-stalks, rootlets, and grasses, woven together with cobwebs; usually built at the junction of a thin forked horizontal branch, and near the end of it.

Egg.—Pale to bright apple-green, uniformly blotched and spotted with markings of reddish or chestnut-brown, sometimes forming a zone at the larger end. Breeding-season: in eastern Australia from October to January or February.

4. Cicada-bird (Jardine Caterpillar-eater) *Edoliisoma tenuirostre*
Jardine—4A. Female

E-dol'-i-i-sōm'-a—Gk, *edolios*, a kind of bird; Gk, *soma*, body: *ten-u-i-ros'-tre*—L., *tenuis*, slender; L., *rostrum*, bill.

Distribution.—Northern and eastern Australia, chiefly coastal and contiguous districts.

Notes.—"Cicada-bird" is an appropriate name; its call-notes resemble the buzzing sound of a large cicada, like "Kree-kree," uttered continuously. Mostly seen in pairs; arrives in New South Wales towards the end of September and departs during February. Food: insects; fond of cicadas, procured among the leaves and branches of trees.

Nest.—A small, open, shallow structure, composed of lichen, pieces of thin bark, plant-stems, and leaves, woven together with cobwebs; lined with finer materials, and decorated on the outside with lichen. An average nest measures $3\frac{1}{4}$ by 2 inches. Usually built into the angle of a forked horizontal branch of a tree, up to 70 feet or more from the ground.

Egg.—Varying from pale bluish to greenish-grey, spotted and blotched with amber, slaty-brown, and underlying markings of lavender. Breeding-season: October to January.

5. Leaden Flycatcher *Myiagra rubecula* Latham—5A. Female
Mÿ-i-ag'-ra—Gk, *myiagra*, flycatcher: *ru-bē'-cu-la*—L., *rubeculus*, reddish.

Distribution.—North-western Australia, Northern Territory, and eastern Australia (from Cape York to Victoria); also found in New Guinea; accidental to Tasmania.

Notes.—Usually in pairs, arriving in New South Wales in September, departing during March. Chiefly a coastal bird; very active, with a peculiar and distinctive trembling movement of the tail. Call-note, a harsh grating noise resembling that of certain species of frogs, hence the name "Frog-bird" used in some districts. Food: insects, chiefly flies, caught on the wing or among the leaves and branches of the tall trees.

Nest.—A cup-shaped structure, composed of fine bark woven together with cobwebs; lined with fine rootlets, and decorated on the outside with pieces of bark and lichen. Usually built on top of a horizontal dead limb of a tree, and invariably protected from above by a live limb; generally at a considerable height from the ground.

Eggs.—Usually three, white or faint bluish-white, spotted round the centre or on the larger end with brown and lavender markings which often form a well-defined zone. Breeding-season: October to January.

6. Satin Flycatcher *Myiagra cyanoleuca* Vieillot—6A. Female *cŷ'-an-o-lēūc'-a*—Gk, *cyanos*, blue; Gk, *leucos*, white.

Distribution.—Eastern Australia (from northern Queensland to Victoria) and Tasmania.

Notes.—Also called Shining Flycatcher and Satin Sparrow. Arrives in south-eastern Australia during September and departs at end of February. Usually in pairs, frequenting the tallest trees. Similar in habits to the Leaden Flycatcher, but has a clearer note. Food: insects, procured chiefly on the wing.

Nest.—Cup-shaped, composed of strips of bark matted together with cobwebs, lined with rootlets and a little hair; externally covered with cobwebs and frequently a few pieces of lichen. Usually built on a horizontal dead limb, protected above by a live limb, at a considerable height from the ground.

Eggs.—Two or three, dull white to faint bluish or greenish-white, spotted with brown and lavender markings, usually with a well-defined zone at the larger end. Breeding-season: November to January.

7. Black-eared Cuckoo *Owenavis osculans* Gould

Owen-ā'-vis—Owen, Richard Owen Mathews; L., *avis*, bird: *os'-cu-lans*—L., *osculans*, coming together.

Distribution.—Australia generally, rare in coastal districts.

Notes.—One of the rarest species of Cuckoos found in Australia. Usually met singly, very quiet in habits; it procures most of its food—insects—on or near the ground; flight similar to that of the Bronze Cuckoos; rarely calls; its note is long drawn out, gradually fading away.

Parasitic.—three authentic foster-parents known. It selects the nest of the Speckled Warbler chiefly.

Egg.—Uniform dark chocolate in colour; very similar to that of the Speckled Warbler. Breeding-season: September to January (New South Wales); March (central Australia).



BIRDS OF THE OPEN FOREST (SOME MIGRANTS)

8. Pallid Cuckoo *Cuculus pallidus* Latham

Cu-cū'-lus—L., *cuculus*, cuckoo: *pall'-id-us*—L., *pallidus*, pallid.

Distribution.—Australia generally, and Tasmania.

Notes.—Also called Grasshopper Hawk, Harbinger-of-Spring, Storm-bird, Semitone-bird, Scale-bird, and Brain-fever bird. Usually met singly; arrives in August and departs during February. It has an undulating and rapid flight with the true cuckoo habit of elevating its tail when alighting. Call, a series of loud crescendo notes, ascending the scale, varied occasionally with a few harsh notes. One of the most useful of birds, destroying large numbers of insects and their larvæ. Caterpillars form the chief article of diet, especially those covered with hair-like bristles which few species of birds eat.

Parasitic—known foster-parents number about eighty-four species (chiefly Honey-eaters). Usually selects as foster-parents species that build open nests.

Egg.—Uniform flesh colour; some have a few dots of a darker hue scattered over the shell. Breeding-season: September to January (New South Wales).

9. Oriental Cuckoo *Cuculus optatus* Gould

op-tā'-tus—L., *optatus*, wished for.

Distribution.—Northern Australia, and accidental to south-eastern Australia; also found in Siberia, India, to New Guinea.

Notes.—Very little is known of this Cuckoo, except that it is seldom found far from the coast. It is remarkably shy and solitary in habits, and its call is not unlike that of the Pallid Cuckoo.

Parasitic—recorded foster parent *Phyllergates coronatus* (Omston).

Egg.—White; a very perfect elongated oval, a shade narrower at one end, measuring 0.8 in. by 0.55 in. (Allan Omston).

10. Sacred Kingfisher *Halcyon sanctus* Vigors and Horsfield

Hal'-cy-on—Gk, *alcyon*, a sea-bird, later the kingfisher; *hal*, the sea; *cyon*, breeding: *sanc'-tus*—L., *sanctus*, sacred.

Distribution.—Australia (except central Australia and Tasmania); occurs also in Sumatra, Borneo, New Hebrides, New Caledonia, and New Zealand.

Notes.—Also called Wood Kingfisher, Forest Kingfisher, Tree Kingfisher, and Green Kingfisher. Usually in pairs, arrives in August or early September, departs in March. Odd pairs often remain throughout the year. It has a peevish note usually uttered four times, frequently during the night; it emits harsh cries if one approaches its nest, and will attack an intruder. Food: small lizards, fish, crabs, and larger insects and their larvæ.

Nest.—In a hollow limb of a tree, in a bank, or in a termites' (white ants) nest in a tree. The birds drill a hole in the termites' nest by piercing it with the tips of their closed bills. After the entrance is formed they excavate a chamber large enough to accommodate themselves and family.

Eggs.—Four to six, pure white and rounded. Breeding-season: October to January.

11. Forest Kingfisher *Halcyon macleayi* Jardine and Selby
macleayi—W. S. Macleay (1792-1865), naturalist, founder of natural history in New South Wales.

Distribution.—North-western, northern, and eastern Australia to as far south as north-eastern New South Wales.

Notes.—Also called Macleay's Kingfisher, Bush Kingfisher, and Blue Kingfisher. It is a stationary species in northern Australia; arrives in north-eastern New South Wales in September, departs in March. It is very similar in habits to the Sacred Kingfisher; most vicious when nesting; the call is loud and is uttered intermittently throughout the day. Food: large insects, small lizards, fish, and crabs. The female does not possess the white nuchal collar, the colour of the head taking its place.

Nest.—A hollowed-out cavity in a termites' nest on a tree, at an average height of 30 feet from the ground.

Eggs.—Four to six, pure white and rounded. Breeding-season: October to December or January.

12. Red-backed Kingfisher *Halcyon pyrrhopygius* Gould
pyr-rho-pyg'-i-us (g=j)—Gk, *pyrrhos*, fire-coloured; Gk, *pyge*, rump, tail.

Distribution.—Australia generally, chiefly the inland portions.

Notes.—Also called Golden Kingfisher. Usually in pairs. Arrives in New South Wales during September, departs in March; only stragglers reach the coastal districts, and it is rarely seen east of the Dividing Range. It keeps to dry areas, often miles from water; call, a single mournful note, uttered at short intervals, but kept up incessantly. Food: large insects and their larvæ and small lizards.

Nest.—A tunnel in a bank of a dry creek, or in a termites' nest.

Eggs.—Four or five, pure white and rounded. Breeding-season: September or October to December or January.

13. Dollar-bird (Broad-billed Roller) *Eurystomus orientalis* Linné
Eür'-y-stom'-us—Gk, *eurys*, wide; Gk, *stoma*, mouth: *or-i-en-tā'-lis*—L., *orientalis*, eastern.

Distribution.—North-western Australia, Northern Territory, and eastern Australia; also as stragglers in South Australia, Tasmania, Lord Howe Island, and New Zealand.

Notes.—Usually in pairs; arrives late September or early October, departs at end of February or March. It spends much of its time perched on the highest dead branch of a tall tree, from which it will dart into the air in pursuit of some flying insect. At dusk it "hawks" continuously above the tree-tops, often remaining on the wing for an hour or so longer. It is named "Dollar-bird" from the round whitish spot on each wing seen when in flight, and "Roller" from its habit of somersaulting when on the wing. The note is peculiarly harsh and discordant; uttered chiefly when on the wing, particularly towards sunset. Food: large flying insects.

Nest.—In a hollow spout or in a hole in a dead tree, always at a great height from the ground.

Eggs.—Three to five, pure white and rounded. Breeding-season: October to December.

14. Rainbow-bird *Merops ornatus* Latham

Mer'-ops—Gk, *merops*, bee-eater: *or-nā'-tus*—L., *ornatus*, adorned.

Distribution.—Australia generally; also occurs from the Celebes to New Guinea.

Notes.—Also called Bee-eater, Spinetail, Sandpiper, Pintail, and Kingfisher. Usually in flocks; arrives in September or October, departs in February or March. A handsome bird with a graceful, occasionally erratic flight, and a shrill whirring call-note. It prefers the more open areas to the thick forest country; procures its food on the wing, spends a good deal of its time perched on dead limbs, fences, and stumps, from which positions it will dart out in pursuit of some insect.

Nest.—A tunnel in the ground, from 1 to 3 feet long, with a cavity at the end. Usually the tunnel is slanting and made in the side of a depression in sandy soil. The nesting cavity is lined with the castings of beetles and other insects.

Eggs.—Five to seven, pure white and glossy. Breeding-season: October to January and February.

15. White-breasted Wood-swallow *Artamus leucorhynchus* Linné

Ar'-tam-us—Gk, *artamos*, butcher: *lēūc-o-rhynch'-us*—Gk, *leucos*, white; Gk, *rhynchos* (*rhugchos*), beak.

Distribution.—Australia (with the exception of the south-western portion).

Notes.—Usually in flocks; arrives in New South Wales in September, departs in March; it does not occur in the southern portions of this State. Is always found in the vicinity of water. A beautiful bird in coloration and graceful in flight; also very affectionate. A most useful species, destroys immense numbers of injurious insects and their larvæ.

Nest.—A cup-shaped structure, composed of dried grasses; built in the fork of a dead tree, or in a hollow spout, often in an old mud nest of the Magpie-lark.

Eggs.—Three or four, white or creamy-white, spotted and blotched with pale brown, yellowish-brown, and very faint bluish-grey markings, chiefly at the larger end. Breeding-season: August or September to January or February.

16. Black-faced Wood-swallow *Artamus melanops* Gould

mel'-an-ops—Gk, *melas* (*melanos*), black; Gk, *ops*, face.

Distribution.—Interior of Australia generally.

Notes.—Chiefly stationary, but is a winter visitor to south-western

Australia; placed in this group for comparison with other species of the genus. Usually in pairs or small flocks. It is similar in habits to the Dusky Wood-swallow.

Nest.—An open, cup-shaped structure, composed of rootlets, small twigs, and plant-stalks; lined with finer materials, and occasionally horse-hair. Usually placed in a small shrub or bush, about 3 or 4 feet from the ground.

Eggs.—Usually four, fleshy-white, uniformly spotted and blotched with dull reddish and umber-brown, and faint underlying markings of bluish-grey. Breeding-season: September to December (New South Wales).

17. White-browed Wood-swallow *Artamus superciliosus* Gould
su-per-cil-i-ōs'-us—L., *superciliosus*, browed.

Distribution.—Australia (with the exception of the north-western portion).

Notes.—Also called Summer-bird and Martin. Mostly in flocks, often accompanied by the Masked Wood-swallow; arrives in southern Australia during September or October and departs in late January. It is one of the most graceful and useful of our birds, and destroys countless numbers of destructive insects.

Nest.—A frail, open, shallow structure, composed of dried grasses, rootlets, strips of bark, and thin twigs; lined with finer materials. Built in a variety of situations, but generally in a bush or tree.

Eggs.—Two or three, whitish-brown to greyish-green, spotted and blotched with pale umber and a few underlying markings of pale slate, forming a zone at the larger end. Breeding-season: October to January.

18. Masked Wood-swallow *Artamus personatus* Gould
per-sō-nā'-tus—L., *personatus*, masked.

Distribution.—Australia generally.

Notes.—Also called Blue-bird, Bush Martin, and Blue Martin. Arrives in southern Australia in flocks, often in the company of the White-browed Wood-swallow, during September or October, departs at the end of January. It is similar in habits to the White-browed species. Both species may visit a locality regularly year after year, then, without any known reason, be absent for many seasons.

Nest.—A cup-shaped structure, irregularly composed of thin twigs; neatly lined with rootlets and grasses. It is usually built in a low bush or sapling, at a height up to 10 feet from the ground.

Eggs.—Two or three, greyish-white to light greenish-grey, clouded and blotched with shades of brown and a few underlying spots of pale grey. Breeding-season: August to December or January.

19. Tree Martin *Hylochelidon nigricans* Vieillot

Hŷ-lo-chel-ī'-don—Gk, *hyle*, wood; Gk, *chelidon*, swallow: *nī'-gri-cans*—L., *nigricans*, blackish.

Distribution.—Australia and Tasmania; also occurs in the Moluccas, Aru Islands, and New Guinea.

Notes.—Also called Tree-swallow. Arrives in southern Australia in flocks during August, departs at the end of March or April. Common in the interior as well as the coastal districts, particularly those areas studded with tall and wide-spreading trees, where one sees it "hawking" insects on the wing. Odd pairs remain throughout the year.

Nest.—Usually in a hole of a dead tree or in a cleft of a cliff; lined with dead leaves. Mud is often used to narrow the entrance.

Eggs.—Four or five, creamy or pearly-white, occasionally with flecks of reddish-brown. Breeding-season: August to January or February.

20. Rufous Song-lark *Cinclorhamphus mathewsi* Iredale

Cin-clo-rhamph'-us—Gk, *cinclos* (*kigklos*), bird; Gk, *rhamphos*, bill. *mathewsi*—Gregory M. Mathews, ornithologist.

Distribution.—Australia generally.

Notes.—Also called Rufous-rumped Singing-lark and Skylark. Arrives in New South Wales and Victoria during the latter end of August, departs again in February. It is a beautiful songster, with rich, sweet, musical notes, usually uttered as the bird soars high in the air or flies from tree to tree. Food: insects, mostly procured on the ground.

Nest.—Cup-shaped, composed of dried grasses; lined with finer grasses, and horse-hair when available; it is built in a depression in the ground.

Eggs.—Three or four, pure white to reddish and faint purplish-white, almost obscured with freckles, dots, or small irregular-shaped markings of reddish or purplish-brown which predominate at the larger end. Breeding-season: September to January (New South Wales).

PLATE XII

SOME HONEY-EATERS OF THE OPEN FOREST

1. Tawny-breasted Honey-eater *Xanthotis flaviventer* Lesson

Xanth-ōl'-is—Gk, *xanthos*, yellow; Gk, *otos*, genitive of *ous*, ear: *flāv-i-ven'-ter*—L., *flavus*, yellow; L., *venter*, belly.

Distribution.—Northern Queensland, from Cape York to the Watson River.

Notes.—Also called Streaked Honey-eater and Streak-naped Honey-eater. Plentiful, frequenting alike scrub, open forest, and mangroves. It is a silent bird. Food: chiefly insects and nectar, procured among the blossoms and foliage.

Nest.—A cup-shaped structure, composed of strips of bark and fibre; lined with fibre and a few fine rootlets. Usually suspended from a horizontal forked branch of a tree, up to 50 feet from the ground.

Eggs.—Two, pinkish-white, marked all over with small spots of bright brownish-red, which are thicker towards the larger end, where small splashes of pale purple occur. Breeding-season: probably November to January or February.

2. Spiny-cheeked Honey-eater *Acanthagenys rufogularis* Gould

Ac-anth'-a-gen-ys—Gk, *acantha*, spine; Gk, *genys*, cheek: *rū'-fo-gu-lā'-ris*—L., *rufus*, red; L., *gularis*, throated.

Distribution.—Interior of Australia generally.

Notes.—Fairly common in the scrub-lands, this species is similar in habits to the Little Wattle-bird. It has a pleasant song, a series of delightful gurgling notes, which frequently end abruptly. Food: insects and nectar.

Nest.—A cup-shaped structure, composed of grasses and rootlets, well matted together with cobwebs and cocoons; lined with hair, fur, wool, or other soft materials. Usually suspended from a forked branch of a tree or a clump of mistletoe, at heights up to 50 feet from the ground.

Eggs.—Two or three, very pale olive-green, spotted, chiefly at the larger end, with dark to light umber and purplish-grey markings. Breeding-season: August to the end of November.

3. Striped Honey-eater *Plectorhyncha lanceolata* Gould

Plēc-to-rhynch'-a—Gk, *plectos*, straight; Gk, *rhynchos* (*rhugchos*), beak: *lan-ce-o-lā'-ta*—L., *lanceolatus*, lance-shaped.

Distribution.—Eastern Australia, from mid-Queensland to South Australia.



SOME HONEY-EATERS OF THE OPEN FOREST

Notes.—Also called Lanceolated Honey-eater. In pairs or small parties, inhabiting the scrub-lands chiefly composed of native pine, she-oak, and mallee. Its song is a pleasing warble—"Chirp, chirp, cherry, cherry;" other notes resemble those of the Olive-backed Oriole. Food: insects and nectar, procured among the blossoms and foliage.

Nest.—A neatly made, purse-shaped structure, composed of grasses and rootlets, neatly woven together with plant down, sheep's wool, and occasionally emu feathers; lined with fine grasses, hair, and feathers. Usually suspended near the extremity of a drooping and swaying branch of a she-oak or other tree.

Eggs.—Three or four, very pale pinkish-white, minutely spotted and speckled with reddish-brown and purplish-grey, the markings being more numerous at the larger end. Breeding-season: August to December.

4. Blue-faced Honey-eater *Entomyzon cyanotis* Latham

En-to-mŷz-on—Gk, *entoma*, insects; Gk, *myzein*, to suck: *cy'-a-nōt'-is*—Gk, *cyanos*, blue; Gk, *otos*, genitive of *ous*, ear.

Distribution.—Australia (except the south-western portion).

Notes.—Also called Banana-bird and Blue-eye. In pairs or small parties, usually inhabiting open forest country. It is very pugnacious, and has a rather loud and monotonous call-note which it frequently utters. Food: insects, nectar, native fruits, and berries.

Nest.—A platform of sticks and twigs, upon which a cup-shaped structure of strips of bark is formed; lined with fine strips and shreds of bark, dried grasses, and hair. Usually built on an outer branch of a tree, often at a considerable height from the ground. This species often uses a deserted nest of the White-browed Babbler as a nesting site.

Eggs.—Two to five, varying from a rich salmon to pale fleshy-buff, sparingly spotted and blotched with purplish-red or chestnut-brown markings, with a few underlying blotches of pale slate. Breeding-season: June to January.

5. Noisy Miner *Mysantha melanocephala* Latham

Mŷz'-anth'-a—Gk, *myzein*, to suck; Gk, *anthos*, flower: *mel'-an-o-ceph'-al-a*—Gk, *melas* (*melanos*), black; Gk, *cephale*, head.

Distribution.—Eastern Australia, from Cairns (northern Queensland) to South Australia and Tasmania.

Notes.—Also called Garrulous Honey-eater, Black-headed Miner, Snake-bird, Cherry-eater, Soldier-bird, Micky, and Squeaker. In small parties, frequenting open forest country and partly cleared lands. It is a restless, inquisitive, bold, and noisy bird, keeping up a constant chatter of loud speaking notes. Food: insects, procured among the leaves and blossoms and on the ground; also pollen, native fruits, and berries.

Nest.—An open, cup-shaped structure, composed of roots, twigs, strips of bark and grasses, frequently bound together and ornamented on the outside with small silken cocoons, and wool; lined with fine grasses

and hair. Usually placed in a bush or tree at heights up to 20 feet or more from the ground.

Eggs.—Three or four, pale pinkish-white, profusely spotted with reddish-chestnut and purplish-grey markings, chiefly about the larger end. Breeding-season: July to December or January.

6. Dusky Miner *Myzantha obscura* Gould

ob-scūr'-a—L., *obscurus*, dusky.

Distribution.—South-western Australia and the mallee country of South Australia and Victoria.

Notes.—Usually in small parties, inhabiting open forest and mallee country. Similar in habits to the Noisy Miner. Food: chiefly insects; also native fruits and berries, procured both on the ground or in the vegetation.

Nest.—A rather bulky, cup-shaped structure, composed of grass and dry twigs; lined with fine grasses, hair, and other soft materials. Usually placed in a bush or small tree, up to 20 feet from the ground.

Eggs.—Three or four, rich salmon-buff, spotted with rich reddish-brown and pale purplish-brown markings, chiefly at the larger end. Breeding-season: July or August to February.

7. Yellow-throated Miner *Myzantha flavigula* Gould

flāv-ig'-u-la—L., *flavus*, yellow; L., *gula*, throat.

Distribution.—Interior of Australia, coastal in north-western Australia, and on Melville Island.

Notes.—Usually in small parties, frequenting open forest and scrublands. Very similar in habits to the Noisy Miner. It is a very tame bird and a constant visitor to the gardens of inland homesteads. Food: insects, nectar, native fruits, and berries.

Nest.—An open, cup-shaped structure, composed of dried grasses and twigs; lined with fine grasses, hair, and other soft materials. Usually placed in a bush or tree at heights varying from 6 to 20 feet or more from the ground.

Eggs.—Three or four, rich salmon-pink, spotted, chiefly about the larger end, with reddish-brown and purplish-grey. Breeding-season: July to November or December.

8. White-gaped Honey-eater *Stomiopera unicolor* Gould

Stom-i-op'-er-a—"error for *Stomioptera*"—Gk, *stoma*, mouth; *stomion*, little mouth; *pera*, derivation unknown: *ū'-ni-col-or*—L., *unicolor*, of one colour.

Distribution.—Tropical northern Australia, from Fitzroy River in the north-west to Leichhardt River in Queensland; also Melville Island.

Notes.—Fairly common in the scrubs bordering rivers and creeks; it is very noisy, uttering a loud whistling call-note. Food: nectar, insects, native fruits, and berries.

Nest.—An open, cup-shaped structure, composed of thin strips of bark and dried grasses; lined with fine grass and other soft materials. Generally placed in a bushy tree.

Eggs.—Usually two, pale pinkish-white, profusely spotted and blotched with reddish-brown, chestnut, and purplish markings, which are more numerous at the larger end. Breeding-season: August to January.

9. Silver-crowned Friar-bird *Philemon argenticeps* Gould

Phil-ē-mon—Gk, *philemon*, loving: *ar-gent'-i-ceps*—L., *argenteus*, silver; *-ceps*, from L., *caput*, *itis*, head.

Distribution.—Tropical northern Australia.

Notes.—Fairly plentiful in the flowering trees of the forests, and occasionally observed in the mangroves. Similar in habits to the Noisy Friar-bird. Food: insects, nectar, native fruits, and berries.

Nest.—A deep, cup-shaped structure, very similar to that of the Noisy Friar-bird.

Eggs.—Usually two, pale pinkish-buff, spotted with reddish-brown, purplish-brown, and purplish-grey markings, chiefly at the larger end. Breeding-season: August to January or even March.

10. Melville Island Friar-bird *Philemon gordoni* Mathews

gordoni—personal name.

Distribution.—Northern Territory and Melville Island.

Notes.—Very little is known of its habits.

Nest.—Not described.

Eggs.—Not described.

11. Little Friar-bird *Philemon citreogularis* Gould

cit-re-o-gu-la'-ris—L., *citreus*, yellow; L., *gularis*, throated.

Distribution.—Northern, eastern, and southern Australia.

Notes.—Also called Little Leatherhead and Yellow-throated Friar-bird. Fairly plentiful in open forest country of the inland districts. Very similar in habits to the Noisy Friar-bird. Food: insects, nectar, native fruits, and berries.

Nest.—A deep, cup-shaped structure, loosely composed of thin grasses and strips of bark, bound together with cobwebs; lined with very thin dried grasses. Usually placed near the end of a drooping branch of a tree, sometimes overhanging water, at heights up to 30 feet or more from the ground.

Eggs.—Two or three, pinkish-buff, spotted and blotched with chestnut and purplish-brown, the markings being more numerous at the larger end. Breeding-season: August to December or February.

12. Helmeted Friar-bird *Philemon yorki* Mathews

yorki—Cape York (northern Queensland).

Distribution.—Northern and eastern Queensland to Mackay.

Notes.—Fairly common in open forest country, frequenting the flowering trees. It is aggressive towards smaller birds, as well as being exceptionally noisy; its call-note, resembling "Poor devil, poor devil," is constantly repeated. Food: insects, nectar, native fruits, and berries.

Nest.—A deep, cup-shaped structure, composed of strips of bark, grasses, and roots, compactly woven together; lined with fine grasses and rootlets. Usually suspended from a forked branch of a tree, at heights up to 40 feet or more from the ground.

Eggs.—Three or four, pinkish-white, spotted and boldly blotched with reddish-brown and dull purple, the markings being bigger and more numerous about the larger end. Breeding-season: August to January.

13. Noisy Friar-bird *Philemon corniculatus* Latham

corn-ic-u-lă'-tus—L., *corniculatus*, horned.

Distribution.—Eastern Australia.

Notes.—Also called Leatherhead, Monk, Four-o'clock, Pimlico, and Poor Soldier. It is plentiful in open forest, brush, and scrub-lands, being a noisy and pugnacious bird of nomadic habits. At times it does considerable damage in orchards. Its call resembles the words "Poor soldier," "Pimlico," "Four-o'clock," and so on. Food: insects, nectar, native fruits, berries, and cultivated fruits.

Nest.—A deep, open, cup-shaped structure, composed of strips of bark and grasses, compactly woven together with cobwebs and cocoons; neatly lined with dried grasses. Usually suspended from a drooping branch, often overhanging water, at heights up to 50 feet or more from the ground.

Eggs.—Two to four, pinkish-buff, spotted with clouded markings of chestnut and dull purplish-grey. Breeding-season: August to December or January.

14. Red Wattle-bird *Anthochaera carunculata* Shaw

An-tho-char'-a—Gk, *anthos*, flower; Gk, *chairein*, to rejoice: *car-un-cula'-ta*—L., *carunculus*, with small pieces of flesh.

Distribution.—From southern Queensland to Victoria to southwestern Australia; accidental to New Zealand.

Notes.—Also called Gill-bird, Wattled Honey-eater, and Mutton-bird. Nomadic in movements, following the eucalypts, angophoras, and banksias as these trees blossom. It frequents chiefly open forest country in the spring and summer, where it usually breeds, and the heath-lands in the autumn and winter to feed on the flowering banksias. Its flesh is excellent eating, and great numbers are killed each year for the table. It has a series of loud, harsh call-notes, difficult to imitate; also a double whistling note when startled. Food: insects and nectar, also cultivated fruits.

Nest.—A cup-shaped structure, composed of twigs, grasses, and strips of bark; lined with grasses, soft pieces of bark, wool, or hair. Usually placed in a bush or tree at heights up to 30 feet or more from the ground.

Eggs.—Two or three, pinkish-buff, spotted with reddish-brown and purplish-grey, the markings being more numerous at the larger end. Breeding-season: July to December.

15. Yellow Wattle-bird *Anthochaera paradoxa* Daudin

par-a-dox'-a—L., *paradoxus*, paradoxical.

Distribution.—Tasmania and the islands of Bass Strait.

Notes.—Also called Wattle-bird. In pairs or flocks, according to the season of the year. Frequents alike open forest and scrub-lands where it feeds among the flowering eucalypts and banksias. Its flesh is excellent eating and, until it was placed on the list of protected birds, great numbers were killed. It has a loud and discordant call-note and a double whistling alarm note. Food: insects and nectar.

Nest.—A cup-shaped structure, composed of small twigs, loosely put together; lined with fine grass and wool; it is often decorated on the outside with cocoons. Usually placed in a forked branch of a tree at heights up to 20 feet from the ground.

Eggs.—Two or three, pinkish-buff, spotted with reddish-brown and purplish-grey, chiefly at the larger end. Breeding-season: July to December.

PLATE XIII

GROUND-FEEDING PIGEONS AND DOVES

1. Peaceful Dove *Geopelia placida* Gould

Gē-o-pel-ī'-a—Gk, *ge*, earth; Gk, *pelia* (*peleia*), dove: *pla'-cid-a*—L., *placidus*, quiet.

Distribution.—Australia (except the south-western portion).

Notes.—Also called Ground-dove and Doo-doo. Usually in pairs or small flocks, frequenting open forest country; it is frequently seen on the sides of roads and near homesteads. Call-note, a melodious cooing—"Doo-del-oo." Food: seeds of grasses and herbaceous plants, procured on the ground.

Nest.—A frail platform of thin twigs, laid crosswise or interlaced together. Usually placed on a horizontal forked branch of a tree at heights up to 20 feet or more from the ground.

Eggs.—Usually two, pure white. Breeding-season: August to January; throughout the year if conditions suitable.

2. Diamond-dove *Geopelia cuneata* Latham

cun-e-ā'-ta—L., *cuneatus*, wedge-shaped.

Distribution.—Australia (except the coastal districts of south-eastern Australia).

Notes.—Also called Little Dove, Turtle-dove, and Red-eyed Dove. Usually in pairs or flocks, chiefly frequenting country in the neighbourhood of rivers and permanent water. It has a rather mournful call; this species is fearless in disposition. Food: seeds of grasses and herbaceous plants, procured on the ground.

Nest.—A frail structure of thin twigs, portions of climbing plants, grasses. Placed in a fork of a low bush or tree, often in a dead bush or on top of a stump.

Eggs.—Usually two, pure white. Breeding-season: September to December or January (New South Wales); May to September (north-western Australia).

3. Bar-shouldered Dove *Geopelia humeralis* Temminck

hu-mer-ā'-lis—L., *humeralis*, shouldered.

Distribution.—North-western Australia, Northern Territory, Queensland, and northern New South Wales; also occurs in New Guinea.

Notes.—Also called Barred-shouldered Dove and Mangrove-dove.

Usually in pairs or flocks, frequenting the scrubs bordering rivers, creeks, swamps, and mangroves. Its call is rather a loud "Coo-coo," resembling "Hollyhock," uttered at long intervals. Food: seeds of grasses and herbaceous plants, and native fruits and berries, procured mostly on the ground.

Nest.—A frail structure of thin twigs, portions of climbing plants, and sometimes grass. Frequently placed in a low bush or tree in the scrub.

Eggs.—Usually two, pure white. Breeding-season: August to March.

4. Plumed Pigeon *Lophophaps plumifera* Gould

Loph-o-phaps—Gk, *lopho*, crest; Gk, *phaps*, pigeon: *plū-mif'-er-a*—L., *pluma*, feather; L., *fero*, I bear.

Distribution.—Northern Australia and the interior of southern Australia.

Notes.—Also called Plumed Bronze-wing and Spinifex Pigeon. Usually in pairs or flocks, frequenting open stony country studded with low, scrubby bushes and spinifex. It is remarkably tame and difficult to flush from the ground. Food: seeds of grasses and herbaceous plants, procured on the ground.

Nest.—A slight depression in the ground sheltered by a low bush or clump of spinifex.

Eggs.—Usually two, pale creamy-white. Breeding-season: after rains, throughout the year.

5. Red-plumed Pigeon *Lophophaps ferruginea* Gould

ferr-ū-gin'-e-a—L., *ferrugineus*, rust-coloured.

Distribution.—North-western Australia, from Shark Bay to west Kimberley.

Notes.—Also called Rust-coloured Bronze-wing. Usually in pairs or small flocks, frequenting open rocky country, studded with low bushes and spinifex, adjacent to water. Its plumage harmonizes wonderfully with its surroundings; when flushed, it rises with a loud whirr and flies short distances. Call-note, a loud "Coo." Food: seeds of grasses and herbaceous plants, procured on the ground.

Nest.—A slight, grass-lined depression in the ground, sheltered by a low bush or clump of spinifex.

Eggs.—Usually two, pale creamy-white. Breeding-season: no fixed period; breeds after rains.

6. White-quilled Rock-pigeon *Petrophassa albipennis* Gould

Pet-ro-phass'-a—Gk, *petros*, rock; Gk, *phassa*, pigeon: *al-bi-pen'-nis*—L., *albus*, white; L., *penna*, feather.

Distribution.—From Kimberley (north-western Australia) to western Northern Territory.

Notes.—Also called Rock-pigeon. Usually in pairs or small flocks, frequenting sandstone country. As a rule it is rather a shy bird, difficult to flush, relying on its protective coloration to render it inconspicuous. If flushed, it rises with a whirr, but only flies a short distance, and usually alights on a bare rock. Food: seeds of grasses and herbaceous plants, procured on the ground.

Nest.—A slight hollow about 2 inches in depth, scooped in the ground near a small tuft of spinifex or stone; lined with soft dead grass.

Eggs.—Usually two, cream-colour or creamy-white. Breeding-season: eggs have been taken in July and October.

7. Chestnut-quilled Rock-pigeon *Petrophassa rufipennis* Collett
rū-fi-pen'-nis—L., *rufus*, red; L., *penna*, feather.

Distribution.—Arnhem Land (Northern Territory).

Notes.—Usually in pairs or small flocks, frequenting the stony parts of the sandstone hills. It is a shy bird, hiding among the rocks, the colours of which harmonize perfectly with its plumage. Food: seeds of grasses and herbaceous plants.

Nest.—Not described.

Eggs.—Not described.

8. Crested Pigeon *Ocyphaps lophotes* Temminck
O'-cy-phaps—Gk, *ocys* (*okus*), swift; Gk, *phaps*, pigeon: *loph-ō'-tēs*—Gk, *lophotes*, crested.

Distribution.—Australia (except the north-western portion).

Notes.—Also called Top-knot Pigeon and Crested Bronze-wing. Usually in pairs or flocks, frequenting chiefly the inland districts. Its favourite haunts are scrubs bordering waterways or about dams. Its flight is rapid, accompanied with a loud whirring noise of the wings. Food: seeds of grasses and herbaceous plants, procured on the ground.

Nest.—A frail platform composed of twigs laid crosswise; usually placed in a bushy horizontal branch, at heights up to 20 feet from the ground.

Eggs.—Usually two, pure white. Breeding-season: practically throughout the year, but chiefly during the spring and summer months.

9. Squatter Pigeon *Geophaps scripta* Temminck
Gē'-o-phaps—Gk, *ge*, earth; Gk, *phaps*, pigeon: *scrip'-ta*—L., *scriptus*, written.

Distribution.—Eastern Northern Territory, Queensland, and western New South Wales.

Notes.—Also called Partridge Bronze-wing. Usually in small flocks, frequenting chiefly the open country of the inland districts. When flushed, the flock rises with a loud whirring noise of the wings, the individuals scattering to seek cover among the grass. Its flesh is excellent eating, and



GROUND-FEEDING PIGEONS AND DOVES

because of this great numbers were destroyed; it is now considered a rare species. Its name, "Squatter," is due to its habit of crouching down to hide itself when approached. Food: seeds of grasses and herbaceous plants, procured on the ground.

Nest.—A shallow depression, scooped in the ground; lined, more or less, with dead, soft grass; mostly sheltered by a tuft of grass or low bush.

Eggs.—Usually two, creamy-white. Breeding-season: regularly September to January, though this species breeds at almost any period of the year.

10. Partridge Pigeon *Geophaps smithi* Jardine and Selby

smithi.—Sir James E. Smith (1759-1828), botanist, president and founder of the Linnean Society, London.

Distribution.—From Kimberley (north-western Australia) to the Gulf country (north-western Queensland).

Notes.—Also called Smith's Partridge Bronze-wing, Naked-eyed Partridge Pigeon, and Bare-eyed Partridge Pigeon. Usually in small flocks, its favourite haunts being open country adjacent to water. Very similar in habits to the Squatter Pigeon. It is said to be nomadic. Food: seeds of grasses and herbaceous plants.

Nest.—A shallow depression in the ground, lined with soft dead grasses, and often sheltered by a tuft of grass or a low bush.

Eggs.—Usually two, pale creamy-white. Breeding-season: normally August to October.

11. Flock Pigeon *Histriophaps histrionica* Gould

His'-tri-o-phaps.—L., *histrion*, actor; Gk, *phaps*, pigeon: *his'-tri-ō-nic-a*.—L., *histrionica*, art of acting.

Distribution.—Northern Australia and the inland portion of New South Wales and northern South Australia.

Notes.—Also called Harlequin Bronze-wing. Usually in flocks, frequenting open country and plains. It is nomadic in habits, its movements being regulated by seasonal conditions and food-supply. At one time this Pigeon was observed in countless numbers, chiefly on the Mitchell grass plains, but it is rarely seen now. Its flesh is excellent eating, numbers being killed when visiting the drinking-pools at dusk. When flushed, the flocks rise with a loud whirring noise, and after circling several times in the air, alight again. Food: seeds of grasses and herbaceous plants, procured on the ground. The female differs from the male in being much duller in coloration, having only faint indications of the markings which adorn the male.

Nest.—On the bare ground, in the shelter of a tussock or low bush.

Eggs.—Usually two, pale creamy-white. Breeding-season: at almost any period of the year if the seasonal conditions are suitable.

12. Brush Bronze-wing Pigeon *Phaps elegans* Temminck

Phaps—Gk, *phaps*, pigeon: *ēl'-e-gans*—L., *elegans*, handsome.

Distribution.—Southern Australia and Tasmania.

Notes.—Usually in pairs, inhabiting chiefly the scrub and heath-lands of the coastal districts. It is usually observed on the ground, and when flushed, rarely perches in a tree, but mostly alights on the ground, after rapidly flying a short distance. Its call is a low mournful "Coo," generally uttered towards evening. Food: seeds of grasses and herbaceous plants; also native fruits and berries, mostly procured on the ground.

Nest.—An open, slightly cup-shaped structure, composed of sticks and twigs. Placed either in a thick bush or in the branches of a fallen tree, frequently on the ground in the shelter of a bush or grass-tree.

Eggs.—Generally two, pure white. Breeding-season: usually October to January.

13. Bronze-wing Pigeon *Phaps chalcoptera* Latham

chal-copt'-ter-a—Gk, *chalcos*, bronze; Gk, *pteron*, wing.

Distribution.—Australia generally, and Tasmania.

Notes.—Usually in pairs, frequenting open forest and scrub-lands. It is generally observed on the ground, and when flushed, rises with a loud whirring noise, flies rapidly for a short distance, and then alights on a branch of a tree. Often it allows one to approach quite near before flying, relying on its protective colouring to enable it to escape detection. Its call is a low mournful "Oom" repeated many times. Food: seeds of grasses and herbaceous plants, and native fruits and berries, mostly procured on the ground.

Nest.—An open, slightly cup-shaped structure, composed of sticks and twigs; some nests are only frail structures, others are compactly built. Usually placed in the fork of a horizontal branch of a tree or bush, at heights up to 30 feet from the ground.

Eggs.—Usually two, pure white. Breeding-season: generally October to January.

14. Wonga Pigeon *Leucosarcia melanoleuca* Latham

Lēūc'-o-sar'-ci-a—Gk, *leucos*, white; Gk, *sarx*, *sarcos*, flesh: *mel'-an-o-lēūc'-a*—Gk, *melas* (*melanos*), black; Gk, *leucos*, white.

Distribution.—Queensland, eastern New South Wales, and eastern Victoria; accidental to Tasmania.

Notes.—Also called Wonga-wonga. Usually singly or in pairs, inhabiting the big scrubs and brushes, where it is mostly observed on the ground. When flushed, it rises with a loud clapping noise of the wings and flies a short distance away before alighting. Generally it alights on a horizontal limb, where it remains quite motionless with its back towards the observer, relying on its coloration to escape detection. It often adopts the same motionless attitude when one comes across it suddenly while it

is feeding on the ground. Owing to its large size and the excellence of its flesh, it was killed in great numbers before being protected. Its call is a loud, high-pitched, resonant "Coo-coo-coo" repeated many times, which can be heard at least half a mile away. Food: seeds of grasses and herbaceous plants, natives fruits and berries, and insects, procured on the ground.

Nest.—An open, almost flat or slightly cup-shaped structure, composed of sticks and twigs. Usually placed on a horizontal branch of a tree, at heights up to 30 feet from the ground.

Eggs.—Usually two, pure white. Breeding-season: normally October to January.

PLATE XIV

BIRDS OF THE BLOSSOMS AND OUTER FOLIAGE

- 1. Lesser Lewin Honey-eater** *Meliphaga analoga* Reichenbach
Mel-iph'-ag-a—Gk, *meli*, honey; Gk, *phagein*, to eat: *an-al'-og-a*—Gk, *analogos*, analogous.

Distribution.—Northern Queensland, from Cape York to Cardwell.

Notes.—Also called Yellow-spotted Honey-eater. In flocks, frequenting the scrubs, occasionally open forest country and mangroves. Food: native fruits, berries, insects, and nectar.

Nest.—A rather deep, cup-shaped structure, composed of bark and dead leaves, woven together with wild cotton; lined with wild cotton or silky down from plants. Suspended from a small fork of a tree or shrub, usually in dense scrub, and placed at heights up to 12 feet from the ground.

Eggs.—Usually two, pearly-white, boldly spotted with deep chestnut and purplish-brown markings, confined chiefly to the larger end. Breeding-season: October to March.

- 2. Purple-gaped Honey-eater** *Meliphaga cratitia* Gould
crā-tit'-i-a—L., *craticius*, wattled.

Distribution.—From northern Queensland to Victoria to southwestern Australia.

Notes.—Also called Wattle-cheeked Honey-eater. In flocks, inhabiting alike dwarf scrub, scrub, or timbered river-flats. Food: insects and nectar.

Nest.—A cup-shaped structure, composed chiefly of thin strips of bark; lined with grass and other materials. Generally suspended from the branch of a bush or small tree, and often within a few feet of the ground.

Eggs.—Usually two, very pale pinkish-white, spotted and blotched with pale to dark reddish-brown markings which become confluent, forming a broken and irregular zone at the larger end. Breeding-season: August to December.

- 3. White-streaked Honey-eater** *Trichodere cockerelli* Gould

Trich'-o-der'-ē—Gk, *trichos*, hair (genitive of *thrix*); Gk, *dere*, neck: *cockerelli*—J. T. Cockerell, field naturalist and collector for John Gould in Queensland and the Aru Islands.

Distribution.—Cape York Peninsula (northern Queensland).

Notes.—Also called Cockerell Honey-eater. In flocks, inhabiting tea-



BIRDS OF THE BLOSSOMS AND OUTER FOLIAGE

tree and small shrubs growing beneath eucalypts and other forest trees. Food: insects and nectar.

Nest.—A rather frail, cup-shaped structure, composed of dried twigs and vine tendrils, bound together with cobwebs. Placed in a small tree, at heights varying between 18 inches and 3 feet from the ground.

Eggs.—Usually two, pale salmon-pink, mottled with cloudy markings of dull reddish-brown at the larger end, where a well-defined zone is formed. Breeding-season: January to May.

4. Graceful Honey-eater *Meliphaga gracilis* Gould
gra'-ci-lis—L., *gracilis*, graceful.

Distribution.—Northern Queensland, from Cape York to Cairns.

Notes.—Also called Little Yellow-spotted Honey-eater. In flocks, frequenting forest country adjacent to scrubs. Food: insects, nectar, native fruits, and berries.

Nest.—A cup-shaped structure, composed of shreds of bark, frequently covered with green moss; lined with wild cotton and a silky fibre collected from plants. Suspended from a leafy branch of a low tree, up to 14 feet from the ground.

Eggs.—Usually two, salmon-pink, marked, almost entirely at the larger end, with rich chestnut and purplish-grey spots. The most beautiful of honey-eater eggs. Breeding-season: October to January.

5. Macleay Honey-eater *Meliphaga macleayana* Ramsay
macleayana—Sir William Macleay (1820-1891), scientist, Sydney, Australia.

Distribution.—Northern Queensland (Cairns district).

Notes.—Also called Yellow-streaked Honey-eater. Not plentiful; it frequents the brushes and scrubs; its call-note is very similar to that of the Yellow-faced Honey-eater. Food: insects, native fruits, and berries.

Nest.—A deep, cup-shaped structure, chiefly composed of fibre, leaves, and other material; lined with fibre and rootlets; placed in a bush.

Eggs.—Usually two, pale fleshy-buff, well spotted and blotched, particularly at the larger end, with reddish-chestnut, intermingled with lilac and dull slate markings. Breeding-season: October to December.

6. White-lined Honey-eater *Meliphaga albilineata* H. L. White
al-bi-lin-e-ā'-ta—L., *albus*, white; L., *lineatus*, lined.

Distribution.—King River (Northern Territory).

Notes.—Also called White-striped Honey-eater. This species appears to be confined exclusively to the rocky gorges of the sandstone hills, inhabiting the deepest and narrowest ravines. Its call-note, which is uttered occasionally, is a loud, clear whistle, "Tu-u-u-heer, tu-u-u-in." Food: insects, nectar, native fruits, and berries.

Nest.—Not described.

Eggs.—Not described.

7. Yellow-fronted Honey-eater *Meliphaga plumula* Gould
plū'-mu-la—L., *plumula*, small feather.

Distribution.—Interior of Australia, ranging from north-western Australia to eastern-central Queensland and South Australia.

Notes.—Also called Plumed Honey-eater. Fairly plentiful in forest country, inhabiting the tall eucalypts and feeding among the blossoms and leaves. Very similar in habits to the White-plumed Honey-eater. Food: insects and nectar.

Nest.—A small, cup-shaped structure, composed chiefly of dry grasses, wool, and spiders' egg-bags; lined with wool and horse-hair; suspended from the branches of a bush or tree.

Eggs.—Usually two, pale salmon, marked at the larger end with minute spots of very pale reddish-brown, which form an irregular zone. Breeding-season: August to December or January.

8. Grey-headed Honey-eater *Meliphaga keartlandi* North
keartlandi—G. A. Keartland, Australian collector.

Distribution.—Central Australia, ranging to the coast in mid-western and north-western Australia and northwards to the Gulf of Carpentaria.

Notes.—Also called Keartland's Honey-eater. Usually in pairs or small flocks, frequenting stunted eucalypts and scrub. Food: insects and nectar.

Nest.—A small, cup-shaped structure, composed of dried grass-stems matted together with silky plant down; lined with the latter material. Frequently suspended from near the extremity of a small leafy branch of a tree, at heights up to 15 feet from the ground.

Eggs.—Usually two, pale fleshy-buff, marked, chiefly about the larger end, with spots of dull reddish-brown. Breeding-season: July to November; May and June; or after rain.

9. Fuscous Honey-eater *Meliphaga fusca* Gould
fus'-ca—L., *fuscus*, brown.

Distribution.—Eastern Australia, from Queensland to South Australia.

Notes.—Mostly in small flocks, frequenting alike open forest and scrub-lands. Food: insects, procured among the blossoms and leaves and occasionally on the wing; also nectar.

Nest.—A neat, cup-shaped structure, composed chiefly of strips of bark, bound and matted together with cobwebs and plant down; lined with hair, fine rootlets, grass, and often with wool or plant down. Usually suspended from the thin branches of a tree or bush, at heights up to 20 feet or more from the ground.

Eggs.—Two or three, rich salmon, sometimes spotted, particularly at the larger end, with reddish-brown and purplish-brown markings. Breeding-season: July to December.

10. Yellow Honey-eater *Meliphaga flava* Gould

flā'-va—L., *flavus*, yellow.

Distribution.—Northern Territory, northern and eastern Queensland to as far south as Mackay.

Notes.—Plentiful in open forest and scrub-lands, frequently visiting orchards and gardens. Its call-note is a merry "Whee-a, whee-a." Food: insects, procured among the flowers and leaves; also nectar.

Nest.—A comparatively shallow, cup-shaped structure, composed of strips of bark and grasses. Generally placed in a bush or small tree, sometimes within 5 feet of the ground.

Eggs.—Usually two, white, with a very pale pinkish tinge, well spotted and blotched with pale to dark reddish-brown and purplish-grey markings, which become crowded at the larger end. Breeding-season: August to November.

11. Yellow-faced Honey-eater *Meliphaga chrysops* Latham

chrÿs-ops—Gk, *chrysos*, golden; Gk, *ops*, face.

Distribution.—Eastern and south-eastern Australia, from Cairns (northern Queensland) to South Australia.

Notes.—Also called Chickup. Plentiful in open forest and scrub-lands, feeding among the blossoms and leaves. It is a lively bird, and its cheery note "Chickup" is a common sound in the bush. Food: insects, nectar, and native fruits; it is troublesome to orchardists when fruit is ripening.

Nest.—A neat, rather deep, cup-shaped structure, composed of bark, cobwebs, and moss, matted together; lined with grass and rootlets. Usually suspended from the thin drooping branches of a bush or tree.

Eggs.—Two or three, pinkish-buff, spotted and speckled, particularly at the larger end, with rich reddish-chestnut and purplish-grey markings. Breeding-season: July to January.

12. Yellow-tinted Honey-eater *Meliphaga flavescens* Gould

flāv-es'-cens—L., *flavus*, yellow.

Distribution.—Northern tropical Australia.

Notes.—Common in open forest and scrub-lands, feeding among the blossoms and leaves of the eucalyptus trees. Very similar in habits to the White-plumed Honey-eater. Food: insects, nectar, and pollen.

Nest.—A small, cup-shaped structure, composed of strips of bark and grasses bound together with cobwebs, occasionally wool and hair; lined with rootlets or wool. Generally suspended from the thin twigs of a drooping branch of a small tree or bush.

Eggs.—Usually two, pale salmon-pink, minutely spotted with very dark reddish-brown and pale purplish-grey markings. Breeding-season: July to the end of November. The breeding-season is influenced by the rains.

13. White-plumed Honey-eater *Meliphaga penicillata* Gould
pen-i-cill-ā'-ta—L., *penicillatus*, pencilled.

Distribution.—Australia (except the Northern Territory and northern Queensland).

Notes.—Also called Greenie, Linnet, Chickoowee, Ringeye, Ringneck, and Australian Canary. Very plentiful in forest-lands generally, also common in gardens. Exceptionally lively and noisy, it is constantly on the move among the flowers and leaves, chattering and uttering its powerful note "Chick-oo-wee." Food: insects, nectar, and pollen.

Nest.—An open, cup-shaped structure, composed of grasses bound together with cobwebs; lined with wool or hair. Usually suspended from the thin twigs of a drooping branch of a tree, mostly a eucalypt, at various heights from the ground.

Eggs.—Usually three, pale pinkish-white, spotted, particularly at the larger end, with small markings of reddish-brown, pinkish-brown, and purplish-grey. Breeding-season: June to December; often as late as April.

14. Yellow-plumed Honey-eater *Meliphaga ornata* Gould
or-nā'-ta—L., *ornatus*, adorned.

Distribution.—Mallee districts of Victoria, South Australia to south-western Australia; occasionally visits New South Wales.

Notes.—Plentiful in open forest, mallee, and scrub-lands. Very similar in habits to the White-plumed Honey-eater. Food: insects, nectar, and pollen.

Nest.—A neat, cup-shaped structure, composed of grasses and strips of bark, with no lining; some nests have thistledown and spiders' cocoons on the outside. Generally placed in a small bush or tree.

Eggs.—Usually two, salmon-pink, spotted, particularly at the larger end, with rich or dark reddish-brown and purplish-grey markings. Breeding-season: August to the end of November, sometimes extending to January.

15. Painted Honey-eater *Grantiella picta* Gould
Grant-i-el'-la—W. R. Ogilvie Grant (1863-1924), Keeper of Bird Department, British Museum: *pic'-ta*—L., *pictus*, painted.

Distribution.—Interior of eastern Australia; South Australia, Victoria, New South Wales, Queensland to McArthur River (Northern Territory).

Notes.—Usually in pairs, frequenting the outer foliage of trees, chiefly eucalypts and oaks, and feeding mainly on mistletoe berries. This species is a medium for distributing the mistletoe plant. Call-note, a monotonous, see-saw whistle.

Nest.—A rather flimsy, cup-shaped structure, composed of fine root-lets and the needle-shaped leaves of the she-oak (*Casuarina*), matted and bound together with cobwebs. Usually suspended from, and secured to,

a drooping branch of a casuarina or eucalypt; the nest is of very open construction.

Eggs.—Usually two, pale salmon-pink, well spotted and speckled with reddish-brown and lilac markings, which become massed at the larger end. Breeding-season: October to February.

16. Regent Honey-eater *Zanthomiza phrygia* Shaw

Zanth-o-mī'-za—Gk, *zanthos* = *xanthos*, yellow; Gk, *myzein*, to suck: *phryg'-i-a*—L., *phrygius* = *phrygian*, regal.

Distribution.—From southern Queensland to Victoria and South Australia.

Notes.—Also called Warty-faced Honey-eater, Turkey-bird, Mock Regent, and Flying Coachman. A nomad, following the flowering of the eucalypts and banksias, among the blossoms of which it feeds on insects and nectar. It is a very noisy and pugnacious bird, fighting its own kind as well as other species. It has a beautiful rich bell-like note.

Nest.—A rounded, cup-shaped structure, composed of strips of stringy-bark; lined with thistledown and other soft material. Usually placed in the upright or horizontal forked branch of a tree, at various heights from the ground.

Eggs.—Two or three, rich reddish-buff, becoming darker at the larger end, spotted and speckled with reddish and purplish-brown markings, which are confined chiefly to the larger end. Breeding-season: August to January.

17. Bell Miner *Manorina melanophrys* Latham

Man-o-rin'-a—Gk, *manos*, thin; Gk, *rhis* (*rhinos*), nose: *mel'-an-o-phrys*—Gk, *melas* (*melanos*), black; Gk, *phrys* (*phrus*), brow.

Distribution.—From southern Queensland to Victoria.

Notes.—Also called Bell-bird. In flocks, frequenting the leaves and branches of tall eucalypts as well as the undergrowth beneath the trees. Large colonies of these birds establish themselves, usually on a timbered ridge, and remain in the one locality for years. Named from its tinkling note, which, when uttered by a number of birds, sounds like the tinkling of a bell. Food: insects and their larvæ, procured among the leaves and branches or in crevices of bark.

Nest.—A cup-shaped structure, composed of grass, thin strips of bark, and twigs, well matted together with cobwebs; lined with rootlets, grass, and plant down. Usually suspended from a forked twig of a small tree or bush, at heights up to 20 feet from the ground.

Eggs.—Two or three, rich flesh-colour, spotted, chiefly at the larger end, with reddish-brown, purplish-brown, and purplish-grey markings. Breeding-season: May or June to November, in some years as late as January.

18. Singing Honey-eater *Meliphaga virescens* Vieillot

vir-es'-cens—L., *virescens*, greenish.

Distribution.—Australia generally (inland in New South Wales).

Notes.—Also called Dairy-bird. Usually in pairs, frequenting chiefly low scrub-lands such as mulga, neelia, and mallee, and flowering scrub trees. The name "Singing Honey-eater" is misleading, for its song is limited; its usual call-note is "Preet, preet, preet;" another call is a plaintive mew. Food: insects, seeds, native fruits, and berries.

Nest.—A well-made, cup-shaped structure, composed of strips of bark and grasses; lined with fur, wool, or other soft materials. Usually suspended from a fork of a low bush.

Eggs.—Two or three, pale pinkish-buff, with a few minute brownish specks scattered about the larger end. Breeding-season: August to December; the breeding-season in inland districts is regulated by the rains.

19. Bridled Honey-eater *Meliphaga frenata* Ramsay

frēn-ā'-ta—L., *frenatus*, bridled.

Distribution.—Northern Queensland (Cairns and Cardwell districts).

Notes.—In pairs or small flocks, chiefly frequenting the flowering eucalypts of the mountain ranges. Food: insects, nectar, native fruits, and berries.

Nest.—A cup-shaped structure, composed of twigs from various climbing plants and portions of soft fern-stems; lined with fine fibre and other materials. Usually suspended from a scrub tree.

Eggs.—Two, white, spotted and blotched, particularly at the larger end, with reddish-brown, brownish-grey, and purplish-grey markings. Breeding-season: probably October to January.

20. Helmeted Honey-eater *Meliphaga cassidix* Gould

cass'-i-dix—L., *cassidix*, helmeted.

Distribution.—Southern Victoria (Dandenong and Gippsland Ranges).

Notes.—In small parties, inhabiting the scrubs during the spring and summer and the big timber in the autumn and winter. An extremely pugnacious bird, vigorously attacking other species which enter its territory; it has a variety of call-notes, which are uttered while feeding or when flying from tree to tree. Food: chiefly insects, procured among the leaves, in crevices of bark, or on the wing.

Nest.—A deep, cup-shaped structure, composed of strips of bark, fine grass, and leaves; lined with soft bark and other materials. Usually suspended from the branch of a bush or small tree.

Eggs.—Usually two, pale flesh-coloured, with rounded spots of reddish-brown and purplish-grey markings, particularly at the larger end. Breeding-season: August to December.

21. Yellow-tufted Honey-eater *Meliphaga melanops* Latham

mel'-an-ops—Gk, *melas* (*melanos*), black; Gk, *ops*, face.

Distribution.—Southern Queensland to Victoria.

Notes.—Also called Whisky and Yellow Whisker. Usually in flocks, frequenting all classes of country from the scrub-lands near the coast to the flowering eucalypts of the inland plains. Its call-note, "Cheop, cheop," is uttered while feeding or when flying from tree to tree. Food: insects, native fruits, and berries.

Nest.—A cup-shaped structure, composed of strips of bark and grasses, usually decorated with cobwebs and spiders' egg-bags; lined with hair, fur, or plant down. Generally suspended from the branch of a bush or low shrub.

Eggs.—Two or three, pinkish-buff, freely spotted with dark reddish-brown and purplish-grey markings. Breeding-season: June to December.

PLATE XV

BIRDS OF THE BLOSSOMS AND OUTER FOLIAGE

1. **Yellow-breasted Sunbird** *Cyrtostomus frenatus* S. Müller
—1A. Female

Cyr'-to-stom-us—Gk, *cyrtos* (*kurtos*), curved; Gk, *stoma*, mouth: *frēn-ā'-tus*—L., *frenatus*, bridled.

Distribution.—North-eastern Queensland to as far south as Yeppoon; also occurs in the Celebes, New Guinea, Admiralty Islands, and Solomon Islands.

Notes.—Usually in pairs, flitting about the flowering trees and shrubs seeking insects and nectar, occasionally darting out to capture an insect on the wing; it has the true humming-bird habit of hovering near flowers. As it flits from flower to flower it utters a note like "Tsee-tsee," while its song is a pretty, tremulous warble.

Nest.—A long, oval-shaped structure with a tail-piece, the side entrance being protected by a hood. Composed of pieces of bark, bark-fibre, dried grasses, rootlets, and dead leaves, held together with cobwebs; lined with fine grasses and plant down. Frequently suspended from a twig of a small bush, often close to the ground and sometimes fastened to suspended pieces of rope or other suitable material hanging about houses, especially verandas.

Eggs.—Two or three, pale greenish-grey, speckled and mottled nearly all over, particularly at the larger end, with umber markings. Breeding-season: September to January or February.

2. **Grey-backed Silver-eye** *Zosterops halmaturina* A. G. Campbell
Zōs-tēr'-ops—Gk, *zoster*, belt; Gk, *ops*, face: *halmaturina*, so called from L., *halmaturus* = kangaroo = Kangaroo Island.

Distribution.—New South Wales, Victoria, South Australia, and Tasmania; also occurs in New Zealand and Chatham Island.

Notes.—Usually in pairs or flocks, according to the season of the year. Habits similar to those of the better-known Grey-breasted Silver-eye.

Nest.—A small, cup-shaped structure, composed of fine grasses, horse-hair, and other materials, well matted and fastened together with cobwebs and spiders' cocoons; lined with fine grasses and sometimes with horse-hair. Usually placed in a horizontal fork of a bush or small tree, at heights up to 15 feet from the ground.

Eggs.—Three to four, pale bluish-green. Breeding-season: September to January or February.

3. Grey-breasted Silver-eye *Zosterops lateralis* Latham

lat-er-ā'-lis—L., *lateralis*, "sided" (*latus*, side).

Distribution.—Northern and eastern Queensland, New South Wales, and Lord Howe Island.

Notes.—Also called White-eye, Blight-bird, Grape-eater, and Sivve. In pairs or flocks, according to the season of the year; common in all classes of forest country and in gardens and orchards. For the greater part of the year it is one of the most useful of birds, destroying all manner of insect pests; but during the fruiting season it is recognized among orchardists as a pest. It has a peevish call-note, while its song is decidedly musical and long sustained. Food: insects and their larvæ, native fruits and berries, and cultivated soft fruits. In winter plumage the sides of the body are deep tawny-buff.

Nest.—Like that of the Grey-backed Silver-eye.

Eggs.—Like those of the Grey-backed Silver-eye.

4. Western Silver-eye *Zosterops australasiæ* Vieillot

australasiæ—of Australasia.

Distribution.—From Carnarvon to Albany (Western Australia).

Notes.—Common in all classes of forest-lands and in gardens and orchards. Similar in habits to the Grey-breasted Silver-eye.

Nest.—Like that of the Grey-breasted Silver-eye.

Eggs.—Like those of the Grey-breasted Silver-eye. Breeding-season: August to December.

5. Pale Silver-eye *Zosterops albiventris* Reichenbach

al-bi-ven'-tris—L., *albus*, white; L., *venter*, belly.

Distribution.—Islands off the coast of northern Queensland and Torres Strait islands.

Notes.—Also called Pale-bellied White-eye. In pairs or flocks, according to the season of the year, frequenting the branches of flowering trees or shrubs. Food: insects and their larvæ, also native fruits and berries.

Nest.—Very similar to that of the Grey-breasted Silver-eye.

Eggs.—Very similar to, though much paler than, those of the Grey-breasted Silver-eye.

6. Scarlet Honey-eater *Myzomela sanguinolenta* Latham—6A. Female

Mÿz'-o-mel'-a—Gk, *myzein*, to suck; Gk, *melî*, honey: *san-guin-o-len'-ta*—L., *sanguinolentus*, blood-coloured.

Distribution.—Eastern Australia, from Cape York to Victoria.

Notes.—Also called Sanguineous Honey-eater and Blood-bird. In flocks, arriving in New South Wales during early spring; in the winter months it is distinctly nomadic. It frequents the flowering eucalypts, mel-

aleucas, and banksias, seeking insects and nectar. The male utters one of the liveliest songs of all our small birds, a succession of remarkably sweet and clear notes, often heard during the midday heat of summer when nearly all other species are silent.

Nest.—A small, cup-shaped structure, composed of thin strips of bark and rootlets, and sometimes horse-hair; usually scantily lined with very fine grass and a few rootlets, and occasionally with horse-hair. Generally suspended from a thin, forked, horizontal twig of a drooping branch of a tree. Favourite nesting-trees are turpentine and paper-barks.

Eggs.—Two, rarely three, white with a faint pinkish tinge, spotted and speckled with dull chestnut, reddish-brown, and purplish-grey markings, forming a zone at the larger end. Breeding-season: October to December or January.

7. Red-headed Honey-eater *Myzomela erythrocephala* Gould—7A. Female

e-ryth'-ro-ceph'-al-a—Gk, *erythros*, red; Gk, *cephale*, head.

Distribution.—Tropical northern Australia, from Derby (north-western Australia) to Cape York (northern Queensland); also occurs in New Guinea.

Notes.—Usually in flocks, frequenting the mangroves and adjacent scrub, seeking insects and nectar from the flowers. It is very active, flitting from one cluster of flowers to another, uttering at the same time a rather sharp and hard chirrup.

Nest.—Like that of the Scarlet Honey-eater, usually placed in the tops of the highest mangroves.

Eggs.—Two, white, finely spotted with pale chestnut, reddish-brown, and purplish-grey, the markings being chiefly confined to the larger end. Breeding-season: October to January.

8. Banded Honey-eater *Myzomela pectoralis* Gould—8A. Female

pec-tor-ā'-lis—L., *pectoralis*, breasted.

Distribution.—Tropical northern Australia.

Notes.—Appears to be nomadic. Usually in flocks, frequenting the flowering trees and shrubs. Food: insects and nectar.

Nest.—A small, cup-shaped structure, composed of strips of bark and fine grasses, bound together with cobwebs; lined with fine rootlets and grasses. Usually suspended from a fork at the extremity of a small leafy branch of a tree or bush.

Eggs.—Usually two, buffy-white, becoming darker towards the larger end, where a band of very minute, clouded, brownish markings form an indistinct zone. Breeding-season: October to January and on to May (June).

9. Black Honey-eater *Myzomela nigra* Gould—9A. Female

nī'-gra—L., *niger*, black.

Distribution.—Over the inland portions of the Australian continent.

Notes.—Apparently nomadic. In flocks, frequenting the flowering



BIRDS OF THE BLOSSOMS AND OUTER FOLIAGE

trees and shrubs. It shows a preference for country through which a bush-fire has previously passed; an active bird; its flight is remarkably quick, and performed with sudden zigzag movements; it has a feeble plaintive call-note. Food: chiefly insects, nectar, and the fruit of the mistletoe.

Nest.—A small, open, shallow structure, loosely constructed of small dead twigs, pieces of dry grass, and other materials, matted together with cobwebs; lined with fine grasses and vegetable down. Usually placed in the fork of a small horizontal limb of a dead bush, up to 6 feet from the ground.

Eggs.—Usually two, yellowish-buff, with an indistinct band of minute spots or clouded markings of pale slate and umber forming a zone at the larger end. Breeding-season: September to December.

10. Green-backed Honey-eater *Glycichæra claudi* Mathews

Glyc-i-char'-a—Gk, *glycichæra*, glycerine; Gk, *glycys*, sweet; Gk, *chairin*, to rejoice: *claudi*—Claudie River, Northern Queensland.

Distribution.—Northern Queensland (Claudie River district).

Notes.—Also called Buff-backed Honey-eater. The only field notes state: "... fairly common in the scrub, but always high up in the leaves, where only the trained eye of one accustomed to look for such things can be expected to find them."

Nest.—Not described.

Eggs.—Not described.

11. White-breasted Honey-eater *Gliciphila fasciata* Gould

Gli-ciph-il-a—Gk, *glycys*, sweet; Gk, *philos*, fond of: *fas-ci-ā'-ta*—L., *fasciatus*, banded.

Distribution.—Tropical northern Australia, from Napier Broome Bay (north-western Australia) to Inkerman (Queensland) and eastern Queensland to Mackay.

Notes.—Usually in flocks, frequenting the paper-bark (*Melaleuca*) swamps, from the blossoms of which it collects its food, consisting chiefly of insects, nectar, and occasionally the buds of flowers. Its note is a sharp, shrill, piping call, rapidly repeated.

Nest.—A bulky, dome-shaped structure, composed of strips of paper-bark and fine rootlets woven together with cobwebs; lined with soft bark. Usually suspended from a pendent branch, overhanging water.

Eggs.—Three or four, white, spotted and blotched with light and dark reddish-brown markings, particularly at the larger end. Breeding-season: October to January (to May).

12. Rufous-throated Honey-eater *Conopophila rufogularis* Gould

Cō-nō-poph-il-a—Gk, *conops*, gnat; Gk, *philos*, fond of: *rū-fo-gu-lā'-ris*—L., *rufus*, red; L., *gularis*, throated.

Distribution.—Tropical northern Australia (except Cape York Peninsula).

Notes.—Also called Red-throated Honey-eater; usually in flocks, frequenting the flowering trees and shrubs, and also the long grasses, seeking insects and nectar. It often catches insects on the wing in the same manner as the Flycatchers.

Nest.—A small, cup-shaped structure, composed of soft pieces of bark, grass, and spiders' cocoons, woven together with cobwebs; lined with stiff stems of grass to keep it in shape. Usually suspended from a pendent branch of a tree up to 20 feet from the ground.

Eggs.—Two or three, white, spotted and speckled with dark reddish-brown or chestnut and slate-grey markings, chiefly at the larger end. Breeding-season: October to February or March.

13. Grey Honey-eater *Lacustroica whitei* North

Lac-us-troic'-a—L., *lacus*, lake; Gk, *oicos*, home: *whitei*—Alfred White, son of H. L. White, Belltrees, Scone, New South Wales.

Distribution.—From Murchison (mid-western Australia) to the Macdonnell Range (central Australia).

Notes.—Also called Inconspicuous Honey-eater. Usually in pairs, frequenting tracts of country where large mulga and other bushes grow. Its call-notes have been described as a succession of five or six monotones, high-pitched but musical, and uttered in a rapid, sibilant manner. Food: insects, procured in the foliage.

Nest.—A frail structure of horse-hair, loosely woven and held together with spiders' webs and cocoons, and placed near the extremity of a slender branch about 7 feet from the ground.

Eggs.—Two, white, moderately marked with small, rich, reddish-brown spots mixed with some underlying markings of dull purplish-grey at the larger end. Breeding-season: probably August to November.

14. Eastern Spinebill *Acanthorhynchus tenuirostris* Latham

Ac-anth-o-rhynch'-us—Gk, *acantha*, spine, thorn; Gk, *rhynchos*, beak: *ten-u-i-ros'-tris*—L., *tenuis*, slender; L., *rostrum*, bill.

Distribution.—Eastern Australia, from Cairns (northern Queensland) to South Australia, Kangaroo Island, Tasmania, and the islands of Bass Strait.

Notes.—Also called Spine-billed Honey-eater, Humming-bird, and Cobbler's Awl. Usually in pairs, frequenting alike scrub and heath-lands and open forest country; it is also a familiar bird in gardens and is exceptionally tame, flitting from flower to flower, probing each bloom with its long, spine-like bill. Its call is a succession of shrill, musical notes; often, when in flight, its wings make a peculiar clapping sound. Food: insects and nectar.

Nest.—A rather deep, cup-shaped structure, composed of bark, grasses, and moss, warmly lined with fine grass and feathers. Usually suspended from a thin, horizontal, forked branch of a thick bush up to 20 feet or more from the ground.

Eggs.—Two or three, pale buff, marked, chiefly at the larger end, with spots of chestnut and dull purplish-grey. Breeding-season: August to December.

15. Western Spinebill *Acanthorhynchus superciliosus* Gould
su-per-cil-i-ōs'-us—L., *superciliosus*, browed.

Distribution.—South-western Australia, from Perth to the Stirling Ranges.

Notes.—Also called White-browed Spinebill. Usually in pairs, frequenting banksia and tea-tree country; in habits it is similar to the Eastern Spinebill. Food: insects and nectar.

Nest.—Like that of the Eastern Spinebill, but slightly smaller.

Eggs.—Two usually, pale pinkish-white, marked, chiefly at the larger end, with spots of chestnut and dull purplish-grey. Breeding-season: August to December.

16. White-naped Honey-eater *Melithreptus lunatus* Vieillot
Mel-i-threp'-tus—Gk, *meli*, honey; Gk, *threptos*, nourished: *lū-nā'-tus*—L., *lunatus*, moon-shaped = markings.

Distribution.—Queensland to Victoria to Western Australia, and the Kent Group (Bass Strait).

Notes.—Also called Lunulated Honey-eater and Blackcap. Usually in small flocks; a common bird throughout the coastal districts, timbered mountain ranges, and open forest country inland; it is also numerous in gardens and is tame and fearless; seen chiefly among the flowering eucalypt trees, seeking insects, pollen, and nectar. Call-note, a single piping whistle, uttered frequently.

Nest.—A small, cup-shaped structure, composed of strips of bark matted together with cobwebs and spiders' egg-bags; lined with grass, rootlets, soft bark, and occasionally fur. Suspended from a drooping branch of a tree at a considerable height from the ground.

Eggs.—Two or three, pale buff, finely spotted and freckled, chiefly at the larger end, with reddish-brown and pale purplish-grey markings. Breeding-season: July to November.

17. White-throated Honey-eater *Melithreptus albogularis* Gould
al-bo-gu-lār'-is—L., *albus*, white; L., *gularis*, throated.

Distribution.—Northern Australia and north-eastern Queensland; also occurs in south-eastern New Guinea.

Notes.—Also called White-chinned Honey-eater. Similar in habits to the White-naped Honey-eater.

Nest.—Closely resembles that of the White-naped Honey-eater.

Eggs.—Usually two, pale salmon-pink, spotted and speckled with reddish-brown markings, chiefly at the larger end. Breeding-season: July to January.

18. Black-chinned Honey-eater *Melithreptus gularis* Gould
gu-lă'-ris—L., *gularis*, throated.

Distribution.—Eastern and southern Australia.

Notes.—Similar in habits to the White-naped Honey-eater, though more vigorous than that species.

Nest.—A cup-shaped structure, composed of strips of bark and other materials, bound together with cobwebs; lined with hair and fur. Usually suspended from the foliage of a drooping branch of a tree, frequently a eucalypt, at a considerable height from the ground.

Eggs.—Two or three, pale salmon-pink, well spotted and speckled with rich reddish-brown and purplish-grey markings, becoming confluent towards the larger end. Breeding-season: July to December.

19. Golden-backed Honey-eater *Melithreptus laetior* Gould
lae'-ti-or—L., *laetior*, more pleasing.

Distribution.—Mid-western, central, and northern Australia.

Notes.—Similar in habits to the Black-chinned Honey-eater.

Nest.—Cup-shaped, built in the drooping leafy twigs of a bauhinia tree, about 10 feet from the ground (the only record).

Eggs.—Probably two, pale fleshy-buff, which gradually passes into a warm reddish-buff on the larger end, where there are spots and blotches of a slightly darker hue, intermingled with underlying markings of faint purplish-buff. (Description of one egg taken in February.)

20. Strong-billed Honey-eater *Melithreptus validirostris* Gould
val-i-di-ros'-tris—L., *validus*, strong; L., *rostrum*, bill.

Distribution.—Tasmania, King Island, and the Flinders Group only.

Notes.—Usually in flocks, frequenting the leaves and blossoms of trees, chiefly eucalypts, in search of insects and nectar. It also has the habit of moving up and down the trunks of trees searching in the crevices of the bark for insect-life.

Nest.—A deep, cup-shaped structure, composed of bark, grasses, and wool, lined with fine grasses. Generally suspended from the drooping branches of a tree at a considerable height from the ground.

Eggs.—Usually three, pale pinkish-white, spotted and speckled with dark reddish-brown and purplish-grey markings, chiefly confined to the larger end. Breeding-season: July to December.

21. Brown-headed Honey-eater *Melithreptus brevirostris* Vigors and Horsfield
brev-i-ros'-tris—L., *brevis*, short; L., *rostrum*, bill.

Distribution.—Southern Queensland to Victoria to south-western Australia, and King Island (Bass Strait).

Notes.—Usually in small flocks, frequenting, for the most part, the outer foliage and blossoms of gum-trees, searching for insects and nectar. It has a high-pitched call-note, repeated quickly.

Nest.—An open, cup-shaped structure, composed of bark, grasses, horse-hair, and cow-hair, neatly built, and bound with cobweb and spiders' egg-bags; lined with hair or fur. Usually suspended from the drooping branches of a eucalypt tree.

Eggs.—Two or three, pale reddish-buff, spotted and finely speckled with reddish-brown and purplish-grey markings, confined chiefly to the larger end. Breeding-season: August to December.

22. Black-headed Honey-eater *Melithreptus affinis* Lesson

af-fin'-is—L., *affinis*, allied.

Distribution.—Tasmania and the islands of Bass Strait.

Notes.—Usually in flocks, frequenting, chiefly, the outer foliage and blossoms of gum-trees; it also visits gardens and orchards, doing considerable damage to the smaller fruits. It has a short, sharp call-note, repeated several times. Food: insects, nectar, and cultivated fruits.

Nest.—A rather deep, cup-shaped structure, composed of strips of bark, wool, and cobwebs; warmly lined with hair, fur, and feathers. Usually suspended from the small twigs at the end of a drooping branch of a eucalypt tree; frequently built high up from the ground.

Eggs.—Two or three, pale flesh-pink, minutely spotted and speckled with reddish-brown and dull purplish-grey markings, confined chiefly to the larger end. Breeding-season: October to the end of December.

PLATE XVI

BIRDS OF THE BLOSSOMS AND OUTER FOLIAGE

1. Yellow Weebill *Smicrornis flavescens* Gould

Smī-corn'-is—Gk, *smicros* (*micros*), small; Gk, *ornis*, bird: *flāv-es'-cens*—L., *flavescens*, becoming yellow (*flavus*, yellow).

Distribution.—Central Australia, north-western Australia, Northern Territory, and northern Queensland.

Notes.—Also called Yellow-tinted Scrub-tit or Yellow-tinted Tree-tit. The smallest bird inhabiting Australia. Usually keeps to the outer foliage of saplings and taller trees; its call-note is loud in proportion to its size; it also has a pretty song. It is very active in quest of insects and their larvæ, keeping up a constant twitter while searching the foliage.

Nest.—A small, dome-shaped structure with a narrow entrance protected by a hood, near the top, composed of partly green stems of herbaceous plants, intermingled with plant down; lined with plant down and a few feathers. Usually attached to thin leafy stems near the top of a tree.

Eggs.—Two or three, creamy-buff, sparingly freckled with dull purplish-brown markings, with a faint zone of a violet shade on the larger end, or an indistinct zone of creamy-brown markings. Breeding-season: August to November or December, extending to April in the Gulf country.

2. Brown Weebill *Smicrornis brevirostris* Gould

brev-i-ros'-tris—L., *brevis*, short; L., *rostrum*, bill.

Distribution.—Southern Queensland to Victoria and Western Australia.

Notes.—Also called Scrub-tit, Short-billed Scrub-tit, and Short-billed Tree-tit. Usually in pairs or small parties, inhabiting the leafy branches of both tall and low trees; clings to the smallest twigs and leaves of the outermost branches, seeking insects and their larvæ; has a low, simple song; the call-note, "Winnie-wieldt," is frequently uttered.

Nest.—A small, rounded structure with a narrow spout-like entrance near the top, composed of fine grasses held together with spiders' cocoons and webs; lined with feathers and soft plant-stalks or down. Usually attached to thin leafy twigs near the top of a gum sapling.

Eggs.—Two or three, creamy-buff to salmon-pink, with a zone of minute freckles of buffy-brown, purplish-brown, or slaty-brown at the larger end. Breeding-season: July to December or January.



BIRDS OF THE BLOSSOMS AND OUTER FOLIAGE

3. White-throated Warbler *Gerygone olivacea* Gould

Gē-ryg'-on-ē—Gk, *gerygone*, born of sound: *ol-iv-ā'-ce-a*—L., *olivaceus*, olive-coloured.

Distribution.—Northern Australia and eastern Australia, to as far south as southern Victoria.

Notes.—Also called White-throated Fly-eater, White-throated Bush-warbler, Native Canary, and Bush Canary. This species is a migrant, arriving in New South Wales in early spring, departing during the autumn; it frequents alike sapling scrubs, open forest, and mountain ranges. Usually in pairs, spending most of its time among the twigs and leaves searching for insects and their larvæ. Its spring song, a sweet cadence uttered at frequent intervals throughout the day, is one of the finest of our bird melodies.

Nest.—An egg-shaped structure, having a hooded entrance near the top, and a tail-piece; composed of fine bark held together with spiders' webs; lined with feathers, fur, hair, or plant down, and often decorated on the outside with spiders' egg-bags. Usually attached to a thin, leafy branch near the top of a gum sapling, up to 40 feet from the ground.

Eggs.—Usually three, sometimes four, pure white to dull reddish-white, covered with fine dots or blotches of purplish-red; some have well-defined zones on the larger end. Breeding-season: September to December.

4. Brown Warbler *Gerygone richmondi* Mathews

richmondi—Richmond River, north-eastern New South Wales.

Distribution.—Southern Queensland, New South Wales, and Victoria.

Notes.—Also called Brown Bush-warbler and Brown Fly-eater. Usually in pairs, inhabiting the brushes and dense scrubs; it is very active when searching for food among the twigs and leaves, occasionally sallying forth into the open to capture an insect. Call-note, a feeble, though pleasing twitter, resembling "What is it? What is it?" repeated several times.

Nest.—A dome-shaped structure with a spout-like entrance near the top, and a tail-piece; composed of grasses and green mosses, held together with spiders' webs; lined with soft silky plant down, and sometimes with fur or feathers; beautifully decorated on the outside with lichen. Usually attached to a thin leafy twig of a tree or a vine. Trees growing on the sides of, or near creeks are favourite sites.

Eggs.—Two or three, white or reddish-white, finely freckled, spotted, and blotched with different shades varying from dull to bright red and faint purplish-red, usually forming a zone on the larger end. Breeding-season: September to January.

5. Fairy Warbler *Gerygone flavida* Ramsay

flāv'-id-a—L., *flavidus*, yellowish.

Distribution.—Northern Queensland, from the Herbert River to near Rockhampton.

Notes.—Also called Yellow Warbler. Usually in pairs, inhabiting brushcs and scrubs bordering creeks; rather a shy bird, with a very pleasing song somewhat like that of the Mangrove-warbler. Food: insects and their larvæ.

Nest.—A rounded structure with an entrance near the top protected with a large hood, and having a small thin tail-piece; composed of thin strips of bark held together with spiders' webs and decorated with a few spiders' egg-bags. Usually attached to a thin horizontal branch of a tree at a height of 5 feet or more from the ground. The nest of this species is usually built near a wasp's nest.

Eggs.—Two or three, pale pinkish-white, rather well spotted and speckled, particularly at the larger end, with pale to dark reddish-brown markings. Breeding-season: September to December.

6. Northern Warbler *Gerygone mouki* Mathews

mouki—said to be from an Australian aboriginal name.

Distribution.—Cairns district (northern Queensland).

Notes.—Also called Queensland Fly-eater. Inhabits the brushcs and dense scrubs; similar in habits to the Brown Warbler.

Nest.—A bulky, dome-shaped structure with a side entrance, suspended from near the end of a thin branch, often overhanging water.

Eggs.—Three, pinkish-white, marked all over with small freckles of reddish-brown, chiefly at the larger end. Breeding-season: November (Mackay).

7. Buff-breasted Warbler *Gerygone levigaster* Gould

lêv-i-gas'-ter—L., *levis*, smooth (probably light-coloured); Gk, *gaster*, belly.

Distribution.—Northern Australia, from Derby to northern Queensland.

Notes.—Inhabits open forest and scrub-lands, mainly keeping to the leafy branches of the trees and thickets; it is a very tame bird, with a weak piping call-note, occasionally uttering a number of other notes in slow succession. Food: insects and their larvæ.

Nest.—A dome-shaped structure with a hooded entrance, composed of fine long grass-stalks and coarser materials; lined with very fine grass and a soft white material. Generally suspended from the thin branch of a tree. Fastened on the outside with cobwebs are numerous round white scale larvæ, cocoons, pieces of lichen, and excreta of caterpillars.

Eggs.—Two, white, speckled over with small reddish-brown markings, more numerous on the larger end, where they generally form a zone. Breeding-season: January to March.

8. Black-throated Warbler *Gerygone palpebrosa* Wallace—8A. Female *pal-pe-brō'-sa*—L., *palpebrosus*, marked round the eye.

Distribution.—Northern Queensland, from Cape York to Cairns; also occurs in the Aru Islands and New Guinea.

Notes.—Usually in pairs, frequenting the tropical scrub, hunting about among the leaves and branches for insects and their larvæ. The young birds have four peculiar head-plumes, which they have the power of erecting and quivering vigorously—probably a protective device.

Nest.—A compact, pear-shaped structure with a hooded entrance near the top, and a tail-piece; composed of palm-fibre and bark, held together with spiders' webs and lichen; lined with soft materials. The nest of this species is suspended from the thin leafy branch of a tree, and built adjacent to a wasp's nest.

Eggs.—Two or three, fleshy-white, speckled nearly all over with purplish-brown or red markings. Breeding-season: January.

9. Western Warbler *Gerygone fusca* Gould
fus'-ca—L., *fuscus*, brown.

Distribution.—From Perth (Western Australia) to north-western Australia, northern South Australia to southern Queensland and to Rutherglen (north-eastern Victoria).

Notes.—Usually in pairs, frequenting open forest and scrub-lands. In New South Wales it is a migrant, arriving in the spring and departing again early in February. It is an active bird, constantly searching among the leaves and branches for insect-life, or catching insects on the wing; it has a sweet but feeble song, and is said to be a ventriloquist.

Nest.—A pear-shaped structure with a short tail-piece and an entrance near the top, slightly sheltered by a small hood; composed of very fine strips of bark, dried grasses, and spiders' cocoons matted together; lined with dried grass and a few feathers. The nest of this species is suspended from the thin leafy branch of a tree, and often placed near the nest of a small yellow wasp.

Eggs.—Three, pinkish-white, with reddish-brown markings which predominate at the larger end. Breeding-season: October to January.

10. Mistletoe-bird *Dicaeum hirundinaceum* Shaw—10A. Female
Dī-cae'-um—Gk, *dicaïron*, an Indian bird: *hir-un-din-ā'-ce-um*—L., *hirundinaceus*, like a swallow.

Distribution.—Australia generally.

Notes.—Also called Flowerpecker and Dicaeum Swallow. Usually in pairs, frequenting the topmost branches of trees, or among the blossoms of the different species of mistletoe (*Loranthus*). This species is a medium for distributing these harmful parasitic plants. It has a pretty warbling song. Food: insects and berries, chiefly those of the mistletoe.

Nest.—A neat, pear-shaped structure with a slit-like entrance in the side; composed of spiders' egg-bags, downy plant seeds, and the sawdust-like excreta of various wood-boring insects, matted together with cobwebs. Usually suspended from a thin branch of a leafy tree up to 30 feet from the ground.

Eggs.—Usually three, pure white. Breeding-season: September to December or January.

11. Little Thornbill *Acanthiza nana* Vigors and Horsfield

Ac-anth-is'-a—Gk, *acanthëon*, thorny brake; Gk, *zao*, I live: *nā'-na*—L., *nanus*, dwarf.

Distribution.—Eastern and southern Australia from the Dawson River (Queensland) to South Australia.

Notes.—Also called Little Tit. Usually in small parties, frequenting the outer branches of trees; it is very active, searching among the leaves and twigs for insects and their larvæ; call-note, a harsh "Tiz-tiz."

Nest.—A domed structure with an entrance near the top; composed of bark and grasses, matted together with cobwebs and often ornamented with green mosses. Usually placed among the outer branches of a leafy tree.

Eggs.—Two to four, whitish, freckled with reddish-brown and lavender markings, especially on the larger end. Breeding-season: August to December.

12. Striated Thornbill *Acanthiza lineata* Gould

lin-e-ā'-ta—L., *lineatus*, lined.

Distribution.—Eastern and southern Australia, from Charleville (southern Queensland) to South Australia and Kangaroo Island.

Notes.—Also called Striated Tit. Usually in small parties, frequenting alike the topmost foliage of the tallest trees and also low shrubs. It is very active, searching diligently for small insects and their larvæ, keeping up a constant chattering, and occasionally uttering a pretty song.

Nest.—A pear-shaped structure with a hooded entrance; composed of bark and grass matted together with cobwebs; lined with feathers or other soft materials.

Eggs.—Three, pinkish-white or creamy-white, freckled all over with pinkish or reddish-brown markings, forming a zone at the larger end. Breeding-season: September to December.

13. Western Thornbill *Acanthiza inornata* Gould

in-orn-ā'-ta—L., *inornatus*, unadorned.

Distribution.—Western Australia, from the Stirling Ranges to the Strelley River.

Notes.—Also called Plain-coloured Tit. Usually in small parties, frequenting the leaves and branches of trees or shrubs. It has a short, feeble song. Food: insects and their larvæ.

Nest.—A rounded structure with a side entrance near the top, composed of dried grasses and other materials, held together with spiders' webs; lined with feathers or plant down. Usually placed among the leafy twigs of trees at various heights from the ground.

Eggs.—Two or three, flesh-coloured, freckled all over with reddish-brown markings, with a zone at the larger end. Breeding-season: September to December.

14. Tasmanian Thornbill *Acanthiza ewingi* Gould

ewingi—Rev. T. J. Ewing, Tasmanian naturalist and friend of John Gould.

Distribution.—Tasmania and King Island (Bass Strait).

Notes.—Also called Ewing's Thornbill. Usually in small parties. Similar in habits to the Brown Thornbill.

Nest.—A neat, dome-shaped structure with a rounded entrance at the side, composed of thin strips of bark-fibre and thickly coated with green moss; lined with freshly budded fern-fronds and feathers. Usually placed in a low shrub.

Eggs.—Three, white, freckled with different shades of purplish-red, with a distinct zone at the larger end. Breeding-season: August to December.

15. Whitlock Thornbill *Acanthiza whitlocki* North

whitlocki—F. Lawson Whitlock, collector for H. L. White in Western and central Australia.

Distribution.—Mid-western, south-western, and east-western Australia (Nullarbor Plain).

Notes.—Also called Lake Way Tit and White-scaled Tit. Usually in small parties; similar in habits to the Brown Thornbill.

Nest.—Like that of the Brown Thornbill; placed in a low bush about 2 feet from the ground.

Eggs.—Three, pinkish-white, marked with small spots and scratches of reddish-brown, passing into blotches on the larger end, where they form a well-defined zone. Breeding-season: July (Zanthus, Nullarbor Plain).

16. Mountain Thornbill *Acanthiza katherina* De Vis

katherina—Katherine River (Queensland).

Distribution.—Northern Queensland (Bellenden Ker Range).

Notes.—Nothing is known of its habits and economy. The type of the species was collected in the Bellenden Ker Range.

Nest.—Not described.

Eggs.—Not described.

17. Robust Thornbill *Acanthiza robustirostris* Milligan

rō-bus-ti-ros'-tris—L., *robustus*, strong; L., *rostrum*, bill.

Distribution.—Western Australia inland to central Australia.

Notes.—Also called Thick-billed Tit. Usually in small parties, frequenting the mulga scrubs; it has a low-pitched, twittering call, and in addition, certain loud and clear joyous notes. Food: insects and their larvæ.

Nest.—A well-built, oval structure with an entrance near the top, composed of fine green grasses bound together with spiders' webs and

cocoons, and lined with these materials. Placed among the slender branches of a small bush.

Eggs.—Three, white, with a very faint tinge of pink, finely speckled with minute markings of reddish-brown, forming a well-defined zone at the larger end. Breeding-season: July to October.

18. Brown Thornbill *Acanthiza pusilla* Shaw

pu-sil'-la—L., *pusillus*, very small.

Distribution.—Southern Queensland to Victoria, South Australia, and the interior; and Tasmania.

Notes.—Also called Brown Tit and Scrub Thornbill. Usually in small parties, frequenting thickets and low scrub; it also visits gardens and orchards, where it does much useful work in destroying insects and their larvæ.

Nest.—A dome-shaped structure with an entrance near the top, composed of bark, coarse grasses, and spiders' webs matted together; lined with feathers and other soft materials. Usually placed near the ground and attached to bracken fern or a low bush.

Eggs.—Three, white, freckled with dull red, reddish-brown, or purplish-red markings, forming a zone at the larger end. Breeding-season: August to December.

19. Broad-tailed Thornbill *Acanthiza apicalis* Gould

a-pic-ā'-lis—L., *apicalis*, tipped.

Distribution.—Western Australia (Swan River).

Notes.—Similar in habits and economy to the Brown Thornbill.

Nest.—An oval-shaped structure with an entrance at the side, composed of soft dried grasses, matted together with spiders' webs and egg-bags; lined with feathers. Attached to the stems of a low bush, close to the ground.

Eggs.—Three, white, with minute freckles and dots varying from dull red to pinkish and faint chestnut-red, the markings predominating on the larger end, often forming an irregular-shaped zone. Breeding-season: July to October, probably to December.

20. Red-tailed Thornbill *Acanthiza hamiltoni* Mathews

hamiltoni—Hamilton, brother of Gregory M. Mathews.

Distribution.—North-western Victoria, South Australia, and central Australia.

Notes.—Also called Rufous-rumped Thornbill. Similar in habits and economy to the Brown Thornbill and other scrub-frequenting species of the genus.

Nest.—An oval-shaped structure with an entrance near the top, composed of bark, wool, dried grasses, and spiders' cocoons matted together;

lined with feathers and other soft materials. Usually placed in the drooping leaves of a eucalypt or acacia.

Eggs.—Three, fleshy-white, thickly freckled, chiefly on the larger end, with reddish-chestnut or reddish-brown markings, forming a well-defined zone. Breeding-season: July to October, probably to December.

21. Inland Thornbill *Acanthiza albiventris* North

al-bi-ven'-tris—L., *albus*, white; L., *venter*, belly.

Distribution.—Interior of New South Wales and Queensland.

Notes.—Also called White-vented Thornbill. Similar in habits and economy to the Brown Thornbill.

Nest.—Similar to that of the Red-tailed Thornbill.

Eggs.—Three, white, with a few pinkish-red dots and spots on the larger end, which form a zone. Breeding-season: July to October, probably to December.

22. Spotted Pardalote *Pardalotus punctatus* Shaw—22A. Female

Pard-al-ō'-tus—Gk, *pardalotus*, spotted: *punc-tā'-tus*—L., *punctatus*, spotted.

Distribution.—Eastern Australia (from Cairns, northern Queensland, to New South Wales), and Victoria, through South Australia to Western Australia; also in Tasmania.

Notes.—Also called Diamond-bird, Ground Dyke, Diamond Dyke, and Ground Diamond. Usually in pairs, frequenting the outer foliage and twigs of the eucalypts. It is rather sedate and slow in moving among the leaves in search of insects and their larvæ. It has a monotonous call-note, like "Slee-p ba-bee"; the "slee-p" high-pitched, the "ba-bee" much lower. The call is ventriloquial.

Nest.—A rounded, domed structure, composed of bark, and placed in a hollowed-out chamber at the end of a tunnel in the ground; tunnels are generally made in the side of a bank or in a stump-hole, and are about 18 inches to 2 feet in length.

Eggs.—Usually four, pure white. Breeding-season: August to December.

23. Yellow-tailed Pardalote *Pardalotus xanthopygus* McCoy

xan-tho-pyg'-us—Gk, *xanthos* = *xanthos*, yellow; Gk, *pyge*, rump, tail.

Distribution.—New South Wales, Victoria, South Australia, and south-western Australia.

Notes.—Also called Golden-rumped Diamond-bird. Similar in habits and economy to the Spotted Pardalote. The female is duller than the male, and lacks the yellow throat.

Nest.—Similar to that of the Spotted Pardalote.

Eggs.—Similar to those of the Spotted Pardalote

24. Striated Pardalote *Pardalotus striatus* Gmelin
stri-ā'-tus—L., *striatus*, striped.

Distribution.—Southern Victoria, South Australia, and Tasmania.

Notes.—Also called Striated Diamond-bird. Usually in pairs; similar in habits and economy to the Spotted Pardalote. Its call-note resembles "Pick-it-up" or "Wit-e-chu."

Nest.—A domed structure, composed of bark, grass, and sometimes feathers, placed in a small hollow or hole in a tree. Nests are situated at heights up to 50 feet or more from the ground. This species has also been known to tunnel into the bank of a creek, where it constructs a nest similar to that of the Spotted Pardalote.

Eggs.—Usually four, pure white. Breeding-season: August to December.

25. Red-tipped Pardalote *Pardalotus ornatus* Temminck
or-nā'-tus—L., *ornatus*, adorned.

Distribution.—Eastern-central Queensland, New South Wales, Victoria, South Australia, central Australia, and western and north-western Australia.

Notes.—Similar in habits and economy to the Striated Pardalote.

Nest.—Similar in construction to that of the Striated Pardalote; placed in holes in trees, in banks, in crevices between stones of houses, and in thatched roofs.

Eggs.—Usually four, pure white. Breeding-season: August to December.

26. Forty-spotted Pardalote *Pardalotus quadragintus* Gould
quad-rā-gin'-tus—L., *quadraginta*, forty.

Distribution.—Tasmania and King Island (Bass Strait).

Notes.—Usually in pairs, keeping among the topmost foliage of the trees in search of food, rarely descending to the ground. It is more retiring in habits than the other Pardalotes. Food: insects and their larvæ, procured among the foliage and from under the bark.

Nest.—Composed of grass, bark, and other materials; placed in a hole or small hollow of a tree at heights up to 40 feet from the ground.

Eggs.—Three or four, pure white. Breeding-season: September to January.

27. Red-browed Pardalote *Pardalotus rubricatus* Gould
ru-bri-cā'-tus—L., *rubricatus*, reddened.

Distribution.—Queensland, Northern Territory, north-western Australia (as far south as the Gascoyne River), interior of New South Wales and South Australia, and central Australia.

Notes.—Usually in pairs, frequenting the outer foliage of trees; its call-note is unlike that of the other Pardalotes, being a loud, mellow whistle repeated five times in succession. Food: insects and their larvæ.

Nest.—Cup-shaped, composed entirely of fine strips of bark, and placed at the end of a tunnel in a bank.

Eggs.—Three or four, pure white. Breeding-season: July to September or October.

28. Black-headed Pardalote *Pardalotus melanocephalus* Gould
mel'-an-o-cep'h'-al-us—Gk, *melas* (*melanos*), black; Gk, *cephale*, head.

Distribution.—Mid-western Australia, across northern Australia to northern Queensland, and southwards to New South Wales.

Notes.—Usually in pairs, keeping to the topmost leafy twigs of trees, where it secures its food, which consists of insects and their larvæ.

Nest.—Like that of the Spotted Pardalote, and placed in similar situations.

Eggs.—Usually four, pure white. Breeding-season: June to November or December; in New South Wales the breeding-season is August to December.

PLATE XVII

BIRDS OF THE TREE-TRUNKS AND BRANCHES

1. Orange-winged Sittella *Neositta chrysoptera* Latham

Ne-o-sitt'-a—Gk, *neos*, new; Gk, *sitte*, woodpecker: *chrȳs-op'-ter-a*—Gk, *chrysos*, golden; Gk, *pteron*, wing.

Distribution.—Southern Queensland, New South Wales, and Victoria.

Notes.—Also called Tree-runner, Nuthatch, Barkpecker, and Woodpecker. Usually in small flocks, frequenting both open forests and scrubs. It is very active, running over the branches and down the trunks of trees with the greatest ease, seeking insect-life in the crevices of the bark. While feeding, and when in flight from tree to tree, it utters soft twittering notes. Its flight is undulatory, and it is then that the orange markings on the wings are seen. The head of the female is black.

Nest.—A well-built, cup-shaped structure, composed chiefly of spiders' webs and cocoons, neatly interwoven, and decorated on the outside with small pieces of bark fastened on like shingles, forming a perfect imitation of the bark of the tree in which it is built. Placed in an upright forked limb of a dead tree at heights up to 50 feet or more from the ground.

Eggs.—Usually three, very variable; a typical clutch is greyish-white, spotted and blotched all over, particularly at the larger end, with dark olive and slate markings. Breeding-season: August to January.

2. Black-capped Sittella *Neositta pileata* Gould—2A. Female

pī-le-ā'-ta—L., *pileatus*, capped.

Distribution.—Interior of Victoria, South Australia, New South Wales, and south and mid-western Australia.

Notes.—Has the same vernacular names as the Orange-winged Sittella. Usually in small flocks, frequenting alike heavily timbered country, open forests, and scrubs. Habits similar to the Orange-winged Sittella.

Nest.—Similar to that of the Orange-winged Sittella.

Eggs.—Similar to those of the Orange-winged Sittella.

3. Striated Sittella *Neositta striata* Gould—3A. Female

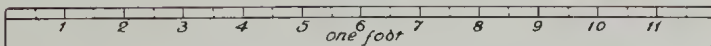
stri-ā'-ta—L., *striatus*, striped.

Distribution.—Northern Queensland, from Cape York southwards to Inkerman.

Notes.—Usually in small flocks in forest country. Probably the most active of the Sittellas.



Scale



BIRDS OF THE TREE-TRUNKS AND BRANCHES

Nest.—A deep, cup-shaped structure, composed almost entirely of elongated pieces of bark and cobwebs; lined with the same material, and placed in an upright forked limb; the outside shingles of bark resemble the branch on which the nest is placed.

Eggs.—Three, white, and lightly marked towards the smaller end with large, dark, slate-coloured markings; the markings at the larger end are confluent, but do not form a zone. Breeding-season: August to December.

4. White-headed Sittella *Neositta leucocephala* Gould

lēūc-o-ceph'-al-a—Gk, *leucos*, white; Gk, *cephale*, head.

Distribution.—Queensland and northern New South Wales.

Notes.—Similar in habits to the other Sittellas.

Nest.—Very similar to that of the Orange-winged Sittella and placed in similar situations.

Eggs.—Usually three, pale greyish-white, spotted and blotched, particularly at the larger end, with sepia and slate markings. Breeding-season: September to December.

5. Pied Sittella *Neositta albat* Ramsay

al-bā'-ta—L., *albat*, whitened.

Distribution.—Northern Queensland.

Notes.—Usually in open forest country; similar in habits to the other Sittellas.

Nest.—Similar to that of the White-headed Sittella.

Eggs.—Very similar to those of the White-headed Sittella. Breeding-season: September to December.

6. White-winged Sittella *Neositta leucoptera* Gould

lēūc-op'-ter-a—Gk, *leucos*, white; Gk, *pteron*, wing.

Distribution.—Tropical northern Australia.

Notes.—By no means plentiful; inhabits forest country, usually keeping to the tops of tall trees.

Nest.—Similar to those of the other Sittellas.

Eggs.—Three, similar in colour and markings but much smaller than those of the Orange-winged Sittella. Breeding-season: August to December (June, July).

7. Brown Tree-creeper *Climacteris picumnus* Temminck

Cli-mac-tēr'-is—Gk, *climacter*, staircase: *pī-cum'-nus*—L., *picumnus*, woodpecker.

Distribution.—Southern Queensland to Victoria, South Australia, and central Australia.

Notes.—Also called Woodpecker. Usually in pairs, showing a preference for open forests and partly cleared lands, where it is met with

feeding upon the ground, or hopping up the trunks of trees, stumps, or fence posts. When disturbed, it flies with a skimming motion of the wings to the nearest tree, generally settling near the base, and ascending the trunk spirally. It has a sharp piercing call, frequently uttered, especially when alarmed. It is friendly and will visit homesteads and eat any scraps of food left about.

Nest.—Composed of fur, hair, and fine feathers. Placed in a hollow limb or the trunk of a tree, often in a hole in a fence post or stump, and situated at heights up to 30 feet or more from the ground.

Eggs.—Two or three, pinkish-white, almost covered with small spots and specks of pinkish-red and purplish markings. Breeding-season: July to October.

8. Rufous Tree-creeper *Climacteris rufa* Gould

rū'-fa—L., *rufus*, red.

Distribution.—South-western Australia and the western parts of South Australia.

Notes.—Usually in pairs, frequenting open forest and scrub-lands. Similar in habits to the Brown Tree-creeper, often seeking its food, insects of various kinds, on the ground. Its note is a single piercing call, uttered more rapidly and loudly when disturbed.

Nest.—Similar to that of the Brown Tree-creeper and placed in the same situations.

Eggs.—Two or three, pinkish-buff, well spotted, blotched, and speckled all over with markings of reddish-brown and dull purple. Breeding-season: September to December.

9. Black Tree-creeper *Climacteris melanota* Gould—9A. Female

mel'-an-o-ta'—Gk, *melas* (*melanos*), black; Gk, *noton*, back.

Distribution.—Northern Queensland (Cape York Peninsula).

Notes.—Usually in pairs, inhabiting open forest country. Call-note, a loud "Spink, spink," frequently uttered. Similar in habits to the Brown Tree-creeper.

Nest.—Built in a hollow limb of a tree. The only record to date.

Eggs.—Two, pinkish-white, well marked all over, and particularly at the larger end, with specks and blotches of pale to rich reddish-brown and purplish markings, the latter being chiefly confined to the larger end. Breeding-season: October and November.

10. White-throated Tree-creeper *Climacteris leucophæa* Latham

lēūc-o-phæ'-a—Gk, *leucos*, white; Gk, *phaios*, grey.

Distribution.—Southern Queensland, New South Wales, Victoria, and South Australia.

Notes.—Usually in pairs, showing a preference for big scrubs and brush. Strictly arboreal in habits, ascending the trunks rapidly in search

of insects. It has a shrill piping cry, "Pink, pink," high pitched and quickly uttered six to eight or more times. Female has an orange-red spot below the cheek.

Nest.—Placed within a hollow limb or trunk of a tree, the hollow being lined with pieces of bark, grass, and fur; placed at heights up to 40 feet from the ground.

Eggs.—Two or three, white, sparingly marked with spots of reddish-brown and purplish-brown, which are more numerous near the larger end. Breeding-season: August to December.

11. Little Tree-creeper *Climacteris minor* Ramsay

mī'-nor—L., *minor*, smaller.

Distribution.—Northern Queensland (Cairns district).

Notes.—Usually in pairs, inhabiting the big scrubs. Similar in habits to the White-throated Tree-creeper. Female has an orange-red spot below the cheek.

Nest.—Placed in a hollow limb or trunk of a small tree, and composed of green moss and soft bark.

Eggs.—Two, pale creamy-white, sparingly marked all over with very small spots and specks of reddish-brown and pale lilac. Breeding-season: October.

12. Red-browed Tree-creeper *Climacteris erythrops* Gould—12A. Female

e-ryth'-rops—Gk, *erythros*, red; Gk, *ops*, face.

Distribution.—Southern Queensland to Victoria.

Notes.—Usually in pairs, inhabiting big scrubs and brushes. Similar in habits to the White-throated Tree-creeper; besides its high-pitched, staccato notes, it has other calls which are softer and tremulous.

Nest.—Composed of a compact mass of bark, well lined with fur; placed in a hollow limb or trunk of a tree at heights up to 40 feet from the ground.

Eggs.—Two or three, pinkish-white, well marked all over with small spots and specks of reddish-brown and dull purple. Breeding-season: August to January.

13. White-browed Tree-creeper *Climacteris affinis* Blyth *af-fīn'-is*—L., *affinis*, allied.

Distribution.—Interior of southern Queensland, New South Wales, South Australia, Western Australia, and central Australia.

Notes.—Usually in pairs, frequenting scrub-lands of the interior; secures its food, insects of various kinds, by spirally ascending tree-trunks or searching fallen timber. The call-notes resemble those of the White-throated Tree-creeper, both in the loud staccato call and in the sweet, low, tremulous notes. The female has rusty-red markings on its fore-neck.

Nest.—Composed of fur, hair, strips of soft bark, dried grasses, and vegetable down; placed in a hollow limb or the trunk of a tree at heights up to 30 feet from the ground.

Eggs.—Two or three, pinkish-white, spotted and speckled with pinkish-red and purplish-red markings. Breeding-season: September to December.

14. Black-tailed Tree-creeper *Climacteris melanura* Gould—14A.
Female

mel'-an-ur'-a—Gk, *melas* (*melanos*), black; Gk, *ura* (*oura*), tail.

Distribution.—North-western Australia (from Derby) to western Queensland.

Notes.—Usually in pairs; found in timbered river-flats clothed in coolabah, bloodwood, wattle, bauhinia, and silver box. Habits similar to the other Tree-creepers.

Nest.—Composed of soft bark, fur, and dried grasses, and placed in a hollow spout or trunk of a tree.

Eggs.—Two, pinkish-white, spotted, blotched, and speckled with numerous and well-distributed markings of pinkish-red and purple, with a well-defined cap at the larger end. Breeding-season: September to January.

15. Allied Tree-creeper *Climacteris wellsi* Grant

wellsi—T. Wells, ornithologist, British Museum, London.

Distribution.—Mid-western Australia.

Notes.—Native name Chinin-chinin. Similar in habits to the other Tree-creepers. The female has a rusty-red marking on its fore-neck.

Nest.—Similar to that of the Black-tailed Tree-creeper.

Eggs.—Similar to those of the Black-tailed Tree-creeper.



SOME BIRDS OF THE SCRUB-LANDS

PLATE XVIII

SOME BIRDS OF THE SCRUB-LANDS

1. Red-throated Whistler *Pachycephala rufogularis* Gould

(—1A. Female)

Pach'-y-ceph'-al-a—Gk, *pachys*, thick; Gk, *cephale*, head: *rū'-fo-gu-lā'-ris*—L., *rufus*, red; L., *gula*, throat.

Distribution.—North-western Victoria and South Australia (mallee).

Notes.—Also called Red-throated Thickhead and Red-lored Thickhead. Usually in pairs, inhabiting the mallee scrubs. It is considered a rare species and little has been recorded concerning its habits. Food: insects.

Nest.—A cup-shaped structure, composed of strips of bark and grasses bound together with cobwebs; lined with soft materials. Generally placed in the branches of a low bush.

Eggs.—Two or three, stone or buff-coloured, spotted, particularly at the larger end, where a zone is formed, with dark brown or umber and lavender. Breeding-season: September to December.

2. Gilbert Whistler *Pachycephala inornata* Gould

in-orn-ā-tā—L., *inornatus*, unadorned.

Distribution.—From north-western Victoria to south-western Australia.

Notes.—Also called Black-lored Thickhead and Gilbert Thickhead. Usually in pairs, inhabiting the scrub-lands, chiefly mallee and pine scrubs. It has a variety of clear, rich call-notes, some of which are ventriloquial. Food: insects. The female is similar to the female Red-throated Whistler.

Nest.—A cup-shaped structure, resembling the nest of the Red-throated Whistler. Usually placed in a low bush, on a stump, or on top of an old Babbler's nest.

Eggs.—Very similar to those of the Red-throated Whistler. Breeding-season: September to November.

3. Crested Bell-bird *Oreoica gutturalis* Vigors and Horsfield

Or-e-ōīc'-ā—Gk, *oros*, *oreos*, mountain; Gk, *oicos*, house: *gut-tur-ā'-hīs*—L., *gutturalis*, throated.

Distribution.—Throughout the interior of Australia.

Notes.—Usually singly or in pairs, inhabiting the dry scrub-lands. It spends much of its time on the ground searching for insects. Hops about

with crest erect. It is a wonderful ventriloquist, and its call of "Reep-reep-reephok," with the final bell-like notes, is difficult at times to locate. Food: insects and seeds.

Nest.—A deep, cup-shaped structure, composed of strips of bark, twigs, and leaves; lined with dried grasses and rootlets. Frequently caterpillars are found in the nest. Usually placed among a mass of upright suckers near the ground, in a thick fork of a tree, or in a hollow stump.

Eggs.—Two to four, pale bluish-white, spotted and blotched, chiefly at the larger end, with sepia and black. Breeding-season: July to January, and in the northern part of its range as late as March.

4. Wedgebill *Sphenostoma cristatum* Gould

Sphēn'-o-stom'-a—Gk, *sphen*, wedge; Gk, *stoma*, mouth: *cris-tā'-tum*—L., *cristatus*, crested.

Distribution.—The interior of Australia generally

Notes.—Usually in pairs or family parties, frequenting low scrubs growing in gullies and watercourses. It is a shy and wary species and has a very pleasing song. Some of its notes are said to be ventriloquial. Food: insects and seeds.

Nest.—An open, shallow, cup-shaped structure, composed of twigs and grass; lined with grass, fur, bark-fibre, or fine rootlets. Usually placed in a low bush within a few feet of the ground.

Eggs.—Two or three, bluish-green, marked with blackish spots here and there. Breeding-season: August or September to January.

5. Grey-crowned Babbler *Pomatostomus temporalis* Vigors and Horsfield

Pō'-mat-o-stom'-us—Gk, *poma* (*pomatos*), lid; Gk, *stoma*, mouth: *tempor-ā'-lis*—L., *temporalis*, belonging to the temple.

Distribution.—Eastern and south-eastern Australia.

Notes.—Also called Apostle-bird, Chatterer, Cackler, Barker, Pine-bird, Cat-bird, Dog-bird, Codlin-moth-eater, Hopper, Jumper, Yahoo, Happy Family, Happy Jack, Twelve Apostles, and Parson-bird. Usually in small flocks of from eight to twelve birds, frequenting the scrub and open forest country. It is exceedingly noisy and active, and spends a considerable part of its time on the ground, hopping about in search of insects. Owing to its quaint chattering or cackling notes and playful habits, it is a general favourite wherever it is found. Many of its calls are difficult to describe, but the loud "Ya-hoo, Ya-hoo" is a very familiar call. Food: insects of various kinds.

Nest.—A large, dome-shaped structure, with a narrow spout-like entrance, outwardly formed of sticks and twigs loosely interwoven; lined with bark-fibre, grasses, cow-dung, or wool. Usually built near the extremity of a forked horizontal branch of a tree at heights up to 20 feet or more from the ground.

Eggs.—Three to six, varying from pale brown to purplish-brown and buff, covered all over with hair-like markings of dark brown. Breeding-season: August to December.



PINE SCRUB



MALLEE SCRUB

Photos. L. G. Chandler

6. Red-breasted Babbler *Pomatostomus rubeculus* Gould
ru-bē'-cu-lus—L., *rubeculus*, reddish.

Distribution.—North-western Australia, Northern Territory, north-western Queensland, and central Australia.

Notes.—Also called Rufous-breasted Chatterer and Cat-bird. Usually in small flocks of from six to twelve birds, frequenting scrub and open forest-lands. It is similar in habits and economy to the Grey-crowned Babbler.

Nest.—A dome-shaped structure similar to that of the Grey-crowned Babbler.

Eggs.—Usually three, resembling those of the Grey-crowned Babbler but slightly smaller. Breeding-season: August to January or February; eggs have also been recorded in June.

7. White-browed Babbler *Pomatostomus superciliosus* Vigors and Horsfield

su-per-cil-i-ōs'-us—L., *superciliosus*, browed.

Distribution.—From northern New South Wales to Victoria, South Australia, and Western Australia.

Notes.—Also called White-eyebrowed Chatterer, Go-away, Stick-bird, and Kangaroo-bird. Usually in small flocks, frequenting scrub and open forest-lands. It is a sociable species and very plentiful. In habits and economy it resembles the Grey-crowned Babbler.

Nest.—A dome-shaped structure with a side entrance, composed of sticks or twigs; lined with grass, wool, or other soft materials. Usually placed in horizontal branches of trees and often in low bushes.

Eggs.—Three to five, various shades of brown, covered all over with hair-like markings of dark brown. Breeding-season: May to December.

8. Chestnut-crowned Babbler *Pomatostomus ruficeps* Hartlaub
rū'-fi-ceps—L., *rufus*, red; *ceps*, from L., *caput*, *itis*, head.

Distribution.—The interior of southern Queensland, New South Wales, Victoria, and South Australia.

Notes.—Also called Chatterer. Usually in small flocks, frequenting the scrub-lands. It resembles the other Babbler in habits, but is less garrulous and shyer in disposition. Food: insects.

Nest.—A dome-shaped structure with a side entrance, similar in construction to the nests of the other Babbler.

Eggs.—Four to five, light stone-colour or various shades of brown, marked all over, but chiefly about the larger end, with hair-like markings of sepia or blackish-brown. Breeding-season: July to December.

9. Spotted Bower-bird *Chlamydera maculata* Gould

Chlam-ȳd'-er-a—Gk, *chlamys*, mantle; Gk, *dere*, neck: *mac-u-lā'-ta*—L., *maculatus*, spotted.

Distribution.—From north-western Queensland to Victoria and South Australia.

Notes.—Usually in pairs or small flocks, frequenting the scrub-lands of the inland districts. In habits it closely resembles the Satin Bower-bird, but is of a shyer disposition. Often, however, birds that take up quarters near homesteads soon become very tame and make nuisances of themselves in the orchards. It has a harsh, grating call, somewhat like the calls of the Satin and Regent Bower-birds. It is an excellent mimic, imitating perfectly the calls of other birds and bush sounds generally. It builds playgrounds or bowers, like other Bower-birds, but much larger, averaging about 3 feet in length, and decorated with an assortment of bleached bones, pieces of glass, and other bright objects. The bowers are usually built in a patch of scrub and are often pulled down and rebuilt time and again. Food: insects, seeds, and native fruits and berries.

Nest.—A rather flat and shallow saucer-shaped structure, composed of thin dead sticks and twigs; lined with fine twigs, and sometimes with dried grasses. Generally placed in a leafy tree, at heights up to 30 feet from the ground. Usually the nest is a frail structure through which the eggs may be seen from beneath.

Eggs.—Usually two, pale greenish-yellow, well marked with numerous lines of light to dark umber and blackish-brown, with others nearly black, and underlying lines of pale purplish-grey. Many eggs are beautifully marked, the tangled tracery of lines forming strange designs. Breeding-season: usually October to December.

10. Western Bower-bird *Chlamydera guttata* Gould *gut-tā'-ta*—L., *guttatus*, spotted.

Distribution.—Mid-western, north-western, and central Australia.

Notes.—Usually in pairs or small flocks, inhabiting the scrub-lands. It is similar in habits to the Spotted Bower-bird, though the bowers are smaller and less substantial structures; the decorations include pieces of white or grey limestone, with the usual collection of bleached bones. Food: insects (chiefly beetles), seeds, and native fruits and berries.

Nest.—A frail, saucer-shaped structure, similar in construction to that of the Spotted Bower-bird, and usually placed in a small or large tree, at heights up to 20 feet or more from the ground.

Eggs.—Usually two, pale greenish-grey, similarly marked with a tangled network of lines like those of the Spotted Bower-bird. Breeding-season: September or October to December, sometimes as late as February.

11. Fawn-breasted Bower-bird *Chlamydera cerviniventris* Gould *cer-vi-ni-ven'-tris*—L., *cervinus*, coloured like a stag; L., *venter*, belly.

Distribution.—Northern Queensland (Cape York Peninsula, on the eastern side of the coastal range); also occurs in New Guinea and the Louisiade Archipelago.

Notes.—Usually in pairs or small flocks, frequenting the scrub, open forest, and mangroves. It is a shy species, more often heard than seen.

Usually the bower built by this bird is a compact structure of closely interwoven sticks and twigs, in fact so compact are the walls of the bower that they can be moved *en masse*. The decorations used about the bowers are mostly bunches of green berries. This species is an excellent mimic. Food: seeds, and native fruits and berries.

Nest.—An open, cup-shaped structure, composed of sticks, twigs, and bark; lined with finer materials. Usually placed in a tree, at heights up to 30 feet or more from the ground.

Eggs.—Usually one, pale creamy-white, covered with a tangled network of lines and hair-like markings of olive-brown, umber, purplish-grey, and blackish-brown. Breeding-season: September to December.

12. Great Bower-bird *Chlamydera nuchalis* Jardine and Selby—12A.
Female

nu-chā'-lis—L., *nuchalis*, naped.

Distribution.—Tropical northern Australia.

Notes.—Usually in pairs or small flocks, frequenting the scrub, open forest, and mangroves. It is said to be less noisy and not such a good mimic as the Spotted Bower-bird. Its bowers are usually built in isolated patches of scrub; they average about 2 feet in length by 18 inches in width and 15 inches in height; often they are roofed over. The decorations usually consist of bleached shells of land-snails or pieces of bleached coral. Food: seeds, and native fruits and berries.

Nest.—Like that of the Spotted Bower-bird, but often not so well built. It is generally composed of a few sticks and twigs, and placed in a thick bunch of twigs in a tree at heights up to 20 feet or more from the ground.

Eggs.—One or two, pale greyish-green, marked, like those of the Spotted Bower-bird, with a tangled tracery of lines and hair-like markings of olive-brown, umber, blackish-brown, and purplish-grey. Breeding-season: September to February.

PLATE XIX.

BIRDS OF THE FOREST BORDERS AND GRASS-LANDS

1. Scarlet Robin *Petroica multicolor* Gmelin—1A. Female

Pet-rōic'-a—Gk, *petros*, rock; Gk, *oicos*, house: *mul'-ti-col-or*—L., *multi-color*, many coloured.

Distribution.—Extra-tropical Australia, and Tasmania; also occurs in Norfolk Island.

Notes.—Also called White-capped Robin, Scarlet-breasted Robin, and Robin Redbreast. Usually in pairs, frequenting chiefly the mountain ranges during the spring and summer, and the flats and open forest-lands near the coast in the autumn and winter. It is also commonly seen in parks, orchards, and gardens. Its call-note is sweet and low; it also has a melodious song. Food: insects of various kinds and their larvæ.

Nest.—A cup-shaped structure, composed of strips of bark, mosses, and dried grasses, woven and bound together with cobwebs; lined with hair, fur, feathers, or other soft materials. Generally built in a forked limb or on a horizontal branch of a low tree. Often the nest is placed between a piece of projecting bark and the trunk of a tree.

Eggs.—Three or four, bluish, greenish, or brownish-white, thickly freckled, spotted, and blotched with shades of brown and underlying markings of purplish-grey. Breeding-season: July or August to December.

2. Red-capped Robin *Petroica goodenovii* Vigors and Horsfield

—2A. Female.

goodenovii—Samuel Goodenough, Vice-President, Linnean Society, London.

Distribution.—Australia generally.

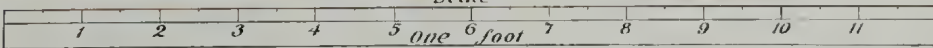
Notes.—Also called Redhead. Usually in pairs, frequenting chiefly open scrub-lands of the inland districts. This species is similar in habits to the Scarlet Robin. It has a peculiar call-note somewhat like the ticking of a clock or the gentle tapping of wood. Food: insects and their larvæ.

Nest.—A small, cup-shaped structure, composed of fine shreds of bark and dried grasses, bound together with cobwebs; lined with hair and fur, occasionally with a few feathers; decorated on the outside with pieces of lichen. Generally built on the top of a thick horizontal branch or in an upright fork of a low tree.

Eggs.—Two or three, bluish or greyish-white, minutely dotted, spotted,



Scale



or blotched with shades of brown, and underlying spots of dull violet-grey; the markings usually predominate on the larger end. Breeding-season: July or August to December.

3. Pink Robin *Petroica rodinogaster* Drapiez—3A. Female

rod-in-o-gas'-ter—Gk, *rodinos* (*rhodinos*), rosy; Gk, *gaster*, belly.

Distribution.—Victoria and Tasmania; accidental to South Australia.

Notes.—Also called Pink-breasted Robin and Magenta-breasted Robin. Usually in pairs, frequenting heavily timbered mountain ranges and gullies during the spring and summer, moving to more open country in autumn and winter. Its call-note closely resembles "Tick, tick, tick." Food: insects of various kinds and their larvæ.

Nest.—A small, cup-shaped structure, composed of green moss bound together with cobwebs; lined with fur and down from the fronds of tree-ferns; the nest is decorated on the outside with lichen. Generally built into a forked horizontal branch.

Eggs.—Three or four, greenish-white, minutely dotted and spotted with pale brown, and underlying markings of lavender predominating at the larger end. Breeding-season: October to December or January.

4. Rose Robin *Petroica rosea* Gould—4A. Female

ro'-se-a—L., *roseus*, rosy.

Distribution.—Eastern Australia, from northern Queensland to Victoria.

Notes.—Also called Rose-breasted Robin. Usually in pairs, frequenting coastal rain forests and contiguous mountain ranges, where it breeds. During the autumn and winter months it frequents chiefly the more open country. Its call-note resembles "Tick, tick, tick;" it also has a pretty song like "We-we-widi-wre-etle." Food: insects and their larvæ.

Nest.—A small, cup-shaped structure, composed of soft fibres and moss, bound together with cobwebs; lined with fur or plant down. Beautifully decorated on the outside with lichen. Generally built at a considerable height on a horizontal branch.

Eggs.—Three, bluish-grey, minutely dotted and spotted, especially on the larger end, with purplish-brown markings. Breeding-season: October to December.

5. Flame Robin *Petroica phœnicea* Gould—5A. Female

phæ-nic'-e-a—Gk, *phoiniceos*, red.

Distribution.—New South Wales, Victoria, South Australia, the islands of Bass Strait, and Tasmania.

Notes.—Also called Flame-breasted Robin. Usually in pairs, frequenting cleared areas in the coastal ranges, and during the colder months the warmer lowlands. Its song is best expressed by the words "You-may-come, if-you-will, to-the-sea." Food: insects of various kinds and their larvæ.

Nest.—A cup-shaped structure, composed of strips of soft bark, grasses, and rootlets; coated with mosses and cobwebs; lined with hair, fur, or plant down. Generally built between a projecting piece of bark and the side of a tree, in a burnt-out trunk or hollow log, or in a crevice of a rocky embankment.

Eggs.—Three to four, pale greenish or bluish-white, finely dotted or irregularly blotched with shades of brown and underlying markings of dull lavender, more so at the larger end. Breeding-season: September to December or January.

6. Eastern White-face *Apheloccephala leucopsis* Gould

Aph-el-o-ceph'-a-la—Gk, *apheles*, smooth; Gk, *cephale*, head: *lēuc-ops'-is*—Gk, *leucos*, white; Gk, *opsis*, appearance.

Distribution.—Southern and central Australia.

Notes.—Also called White-faced Titmouse and Squeaker. Usually in pairs or flocks, and often observed feeding in the company of the Yellow-tailed Thornbill. It frequents chiefly open forest country and cleared lands, securing most of its food on the ground. A sociable species with a cheerful song. Food: insects and their larvæ, and seeds.

Nest.—A domed structure, loosely constructed of strips of bark and grasses; lined with feathers or other soft materials. Generally placed in the cavity of a stump or post, and often in a shed or dwelling.

Eggs.—Three to five, white to pale buff, profusely spotted and blotched with shades of brown and purplish-grey markings, often forming a zone at the larger end. Breeding-season: June to October or November.

7. Western White-face *Aphelocephala castaneiventris* Milligan

cas-tan'-e-i-ven'-tris—L., *castaneus*, chestnut; L., *venter*, belly.

Distribution.—Western and north-western Australia to central Australia.

Notes.—Usually in pairs or flocks, frequenting chiefly open scrub-lands. It is similar in habits to the Eastern White-face. Its call-note is musical, though rather plaintive. Food: insects of various kinds and seeds procured on the ground.

Nest.—Similar in shape and construction to that of the Eastern White-face. Generally placed in a hollow stump or tree-trunk, or in a prickly bush.

Eggs.—Three to four, pinkish-white, profusely spotted and blotched with reddish-brown and purplish-grey markings, forming a large and dark zone at the larger end. Breeding-season: August, September, and October.

8. Chestnut-breasted White-face *Aphelocephala pectoralis* Gould

pec-tor-ā'-lis—L., *pectoralis*, breasted.

Distribution.—Central Australia and the interior of South Australia.

Notes.—Usually in pairs or flocks, frequenting open country and open scrub-lands. Similar in habits to the other White-faces. Its call-note is low and plaintive; it is rather a shy bird. Food: insects and seeds, procured on the ground.

Nest.—Not recorded.

Eggs.—Not recorded.

9. Banded White-face *Aphelocephala nigricincta* North
ni-gri-cinc'-ta—L., *niger*, black; L., *cinctus*, banded.

Distribution.—Central Australia.

Notes.—Also called Black-banded White-face. Usually in pairs or flocks, frequenting open country. It is similar in habits to the other White-faces, but its call-note is different and much sweeter. Food: insects and seeds, procured on the ground.

Nest.—A bulky, dome-shaped structure with a long spout-like entrance, composed of dark-coloured twigs; lined with flower-stems, flower-pods, and feathers. Generally placed in a prickly bush or shrub.

Eggs.—Usually three, pale pinkish-white, speckled and spotted with pale reddish-brown and purplish-grey markings, forming an irregular zone at the larger end. Breeding-season: April and May.

10. Slender Thornbill *Acanthiza morgani* Mathews

Ac-anth-is'-a—Gk, *acanthion*, thorny brake; Gk, *zao*, I live: *morgani*—Dr A. M. Morgan, Honorary Ornithologist, National Museum, Adelaide, South Australia.

Distribution.—Interior of South Australia, central Australia to Western Australia (Shark Bay).

Notes.—Also called Thin-billed Tit. Usually in pairs or flocks, frequenting open country studded with low bushes, rocky hillsides, and the margins of salt lakes. It is inconspicuous in habits; has a feeble song, and a call-note resembling "Tip-tip-tip," uttered rapidly. Food: insects and their larvæ, procured on the ground and in low bushes.

Nest.—An oblong, domed structure with an opening near the top, loosely constructed of thin strips of bark and soft plant-stems, woven together with cobwebs; warmly lined with plant down. Generally built in a low bush.

Eggs.—Usually three, pinkish-white, marked all over, but particularly at the larger end, with very small spots of dull reddish-brown. Breeding-season: July to August.

11. Dark Thornbill *Acanthiza hedleyi* Mathews

hedleyi—Charles Hedley, scientist, of Sydney, Australia.

Distribution.—Western Victoria and southern South Australia.

Notes.—Also called Dark Brown Tit. Usually in pairs or small flocks, frequenting samphire flats. It is extremely shy and quiet, and keeps very

close to cover. It has a pleasant, half-twittering, half-warbling song, of short duration. Food: insects and their larvæ.

Nest.—A domed structure with a side entrance near the top, composed of swamp grasses and plant down; lined with feathers and plant down. The nest was placed in a clump of small bushes in a dry swamp at about 2 feet 6 inches from the ground. (Only one record.)

Eggs.—Two? white, sparsely spotted with pink all over, with fewer spots towards the smaller end, and a decided ring of spots about one-third of its length from the larger end. Breeding-season: October.

12. Varied Thornbill *Acanthiza squamata* De Vis

squā-mā'-ta—L., *squamatus*, scaled.

Distribution.—Northern and eastern Queensland.

Notes.—Also called Scaly-breasted Tit-warbler. Frequents mountain ranges; probably similar in habits and economy to the Buff-tailed Thornbill.

Nest.—Similar to that of the Buff-tailed Thornbill.

Eggs.—Similar to those of the Buff-tailed Thornbill.

13. Yellow-tailed Thornbill *Acanthiza chrysorrhoa* Quoy and Gaimard

chrÿs-orr(h)'-o-a—Gk, *chrysos*, golden; Gk, *orrhos*, tail.

Distribution.—Australia (except north-western Australia and Northern Territory) and Tasmania.

Notes.—Also called Yellow-rumped Tit, Yellow-rumped Tit-warbler, and Yellow-tail. Usually in pairs or flocks, frequenting open forest and partly cleared lands; it is also common in orchards, vineyards, parks, and gardens. It spends much of its time on the ground, and when flushed, rarely flies any distance. Its song is a succession of soft, sweet notes, following a sharp "Chip, chip." Food: insects and their larvæ.

Nest.—A double nest, consisting of a dome-shaped structure with a narrow entrance at the side, with a roughly formed, open, cup-shaped addition built on top; composed of dried grasses, plant-stalks, cobwebs, spiders' egg-bags, wool, or other soft materials, all matted together; lined with fine dried grass, hair, wool, fur, and feathers. The upper compartment is believed to be used by the male at night. Generally built in the bushy end of a drooping branch, or in some thickly foliated tree.

Eggs.—Three or four, white or pale flesh-colour, sometimes speckled with pale red or reddish-brown markings at the larger end. Breeding-season: July to December, and often until May.

14. Buff-tailed Thornbill *Acanthiza reguloides* Vigors and Horsfield

rēg-u-lōi'-dēs—L., *regulus*, European genus = kinglet; *-oides* from Gk, *eidos*, form = like.

Distribution.—Southern Queensland to Victoria and South Australia.

Notes.—Also called Buff-rumped Tit, Buff-rumped Tit-warbler, and Bark-tit. Usually in pairs or flocks, frequenting open scrub-lands, lightly

timbered ranges, and open forests. It procures its food either among the leaves and branches or on the ground. When in flight it spreads its tail, and flits along with a jerky motion. Food: insects and their larvæ.

Nest.—A dome-shaped structure with an entrance at the side, slightly protected by a small hood. It is composed of grass and bark, bound together with cobwebs and feathers, sometimes with hair or fur; lined with soft materials. Generally built between a piece of loose bark and the trunk of a tree, or in a shallow hole or a niche in a tree; sometimes in a low bush or in a grass-tree.

Eggs.—Three or four, white or fleshy-white, sprinkled with freckles and small irregular-shaped spots of light red to rich brownish-red, the markings being chiefly confined to the larger end. Breeding-season: August to December.

15. Chestnut-tailed Thornbill *Acanthiza uropygialis* Gould

ur-o-pyg-i-ā'-lis—Gk, *ura* (*oura*), tail; Gk, *pyge*, rump, tail.

Distribution.—Southern half of the Australian continent.

Notes.—Also called Chestnut-rumped Tit and Chestnut-rumped Tit-warbler. Usually in pairs or small flocks, frequenting chiefly the scrubs of the dry inland districts. It is a restless species, always on the move, uttering a little twittering call-note as it searches for food on the ground or in the bushes. It also has a cheertful little song. Food: insects and their larvæ.

Nest.—A domed structure with an entrance at the side, composed of bark and grass, bound together with cobwebs; lined with feathers. Generally placed in a hollow in a dead tree-trunk or a fallen log; mostly the entrance is through a crack or knothole.

Eggs.—Usually three, fleshy white, freckled all over, but more so at the larger end, with reddish-brown markings. Breeding-season: July and August to December.

16. White-fronted Chat *Epthianura albifrons* Jardine and Selby

—16A. Female

Ep-thi-an-ūr'-a—derivation unknown: *al'-bi-frons*—L., *albus*, white; L., *frons*, forehead.

Distribution.—Southern Queensland to Victoria to south-western Australia, and Tasmania.

Notes.—Also called Tang, Banded Tintac, Ringlet, Nun, Clipper, Dotterel, Jenny-wren, Ballyhead, Gar, Bumps, Moon-bird, and Ringneck. Usually in pairs or small flocks, frequenting chiefly open country studded with low bushes, or swampy localities. In certain districts it is a resident species, but generally it is a nomad. It is a sprightly bird, and spends most of its time on the ground. Its call-note is a metallic "tang." Food: insects of various kinds.

Nest.—A cup-shaped structure, composed of twigs, grass, and fine rootlets; lined with hair. Generally placed in a low bush, in a shrub, or in tall grass.

Eggs.—Three or four, white, with reddish-brown spots on the larger end. Breeding-season: July to December and often in the autumn months.

17. Crimson Chat *Epthianura tricolor* Gould—17A. Female *tri-col-or*—L., *tricolor*, three-coloured.

Distribution.—Australia (except Cape York Peninsula).

Notes.—Also called Tricoloured Chat. Usually in pairs or small flocks, frequenting open country studded with low bushes. It is nomadic in habits, and like the White-fronted Chat, spends much of its time on the ground. It is often seen in company with the Orange Chat. Its call-note is a metallic "ting-ting." Food: insects of various kinds.

Nest.—A cup-shaped structure, composed of grass and rootlets; lined with finer materials. Generally placed in a low bush or shrub or in a tuft of long grass.

Eggs.—Three or four, white, sparingly spotted with reddish-purple markings. Breeding-season: October to December (east); July to March (west).

18. Orange Chat *Epthianura aurifrons* Gould—18A. Female *āūr'-i-frons*—L., *aurum*, gold; L., *frons*, forehead.

Distribution.—Interior of Australia generally.

Notes.—Also called Orange-fronted Chat, Yellow Tintac, and Salt-bush Canary. Usually in pairs or small flocks, frequenting open country studded with low bushes or samphire flats. It is nomadic in habits, and although chiefly found in the inland areas, also visits the samphire swamps bordering the coast. It is similar in habits and economy to the Crimson Chat.

Nest.—A cup-shaped structure, composed of grass and rootlets; lined with finer materials. Generally placed in a low bush or in a tuft of long grass.

Eggs.—Usually three, white, dotted all over, but more so at the larger end, with purplish-red markings. Breeding-season: September to February.

19. Yellow Chat *Epthianura crocea* Castelnau and Ramsay—19A. Female *cro'-ce-a*—L., *croceus*, yellow.

Distribution.—Interior of northern Australia, from Fitzroy River (north-western Australia) to Norman River (northern Queensland).

Notes.—Also called Yellow-breasted Chat. Usually in pairs, frequenting marshy swamps. It is not a shy species, but when disturbed, makes for safety among the grasses. It procures its food, consisting of insects, among the grasses or in small bushes. It has a simple call-note, but no song.

Nest.—A cup-shaped structure, composed of grasses and rootlets; lined with finer materials. Generally placed in a low bush.

Eggs.—Usually three, white, dotted all over with purplish-red markings. Breeding-season: November to January.

20. Gibber-bird *Ashbyia lovensis* Ashby

Ashbyia—Edwin Ashby, ornithologist, Blackwood, South Australia: *lovensis*—J. R. Love, collector of Australian birds for Edwin Ashby.

Distribution.—Central Australia and the interior of Queensland, New South Wales, and South Australia.

Notes.—Also called Desert Chat. Usually in pairs or family parties, frequenting open country—chiefly gibber plains. It is unlike the other Chats in habits, for it spends most of its time on the ground and rarely takes to the low bushes. It also mounts high in the air, after the manner of a Song-lark, and in its descent utters a sharp "Whit-whit-whit." Food: insects of various kinds.

Nest.—A deep, neat structure, composed of small twigs and dry grass; neatly lined with rootlets. Built in a comparatively deep hole, the rim extending or overlapping all round and slightly higher than the level of the ground.

Eggs.—Usually three, pure white, with reddish-brown spots clustered round the larger end; sometimes other spots are scattered over the smaller end. Breeding-season: May to October or after rain.

21. Speckled Warbler *Chthonicola sagittata* Latham

Chtho-nic'-o-la—Gk, *chthon*, earth; L., *colere*, to inhabit: *sa-git-tā'-ta*—L., *sagittatus*, marked with arrows.

Distribution.—South-eastern Queensland, eastern New South Wales, Victoria, and South Australia.

Notes.—Also called Little Field-lark, Little Wren, Speckled Jack, Blood-tit, and Jenny-wren. Usually in pairs or small flocks, frequenting open forest country and open areas. It is often seen in the company of the Yellow-tailed Thornbill, Buff-tailed Thornbill, and Brown Thornbill. It spends much of its time on the ground, and is very trustful. Food: insects and their larvæ.

Nest.—A domed structure with a side entrance, composed of dried grasses; lined with soft materials. Built in a slight depression in the ground.

Eggs.—Three or four, glossy reddish-brown, with a darker zone at the larger end. Breeding-season: September to January.

PLATE XX

PARROTS AND COCKATOOS OF THE FOREST-LANDS

1. Red-cheeked Parrot *Geoffroyus geoffroyi* Bechstein—1A. Female
Geoffroyus—Geoffroy St Hilaire, French naturalist: *geoffroyi*—Geoffroy
 St Hilaire.

Distribution.—Northern Queensland (Cape York Peninsula); also occurs from Timor to New Guinea.

Notes.—Very little has been recorded of the habits of this Parrot, except that it frequents the scrub fringing the banks of rivers, and that its call and flight differ from other Australian Parrots.

Nest.—In a hollow in a scrub tree. (W. McLennan found a nest containing two young birds in the scrub at Rocky River, Cape York Peninsula, in December 1920.)

Eggs.—Not recorded.

2. Superb Parrot *Polytelis swainsoni* Desmarest

Po-lyt'-el-is—Gk, *polyteles*, magnificent: *swainsoni*—William Swainson (1789-1855), English ornithologist and artist.

Distribution.—Interior of New South Wales and Victoria (Riverina district and Murray River basin).

Notes.—Also called Green Leek, Barraband Parakeet, and Scarlet-breasted Parrot. Usually in pairs or small flocks, frequenting chiefly belts of timber bordering watercourses, and adjoining grass-lands. It is generally observed either feeding on the seeds of grasses and other plants, or seeking nectar in the blossoms of eucalypts. Females and immature males are duller in colour than the adult male, and they do not possess the yellow markings on the head, cheeks, and throat, or the red band on the chest.

Nest.—In a hollow limb or hole in a tree, at a considerable height from the ground.

Eggs.—Four to six, white. Breeding-season: September to December.

3. Princess Parrot *Polytelis alexandrae* Gould
alexandrae—Queen Alexandra.

Distribution.—Central Australia to Western and north-western Australia.



PARROTS AND COCKATOOS OF THE FOREST-LANDS

Notes.—Also called Queen Alexandra's Parakeet, Alexandra Parrot, Alexandrine Parrot, and Princess of Wales' Parakeet. Usually in pairs or small flocks; appears to be nomadic in habits. It is generally seen in belts of timber near watercourses, and spends much of its time on the ground searching for the seeds of various grasses, chiefly spinifex. It has the singular habit of lying on a stout limb of a tree like a lizard, instead of perching on a twig or thin branch. Food: seeds of grasses and herbaceous plants.

Nest.—In a hollow limb or hole in a tree.

Eggs.—Four to six, white. Breeding-season: September, October, and November.

4. Regent Parrot *Polytelis anthopeplus* Lear

an-tho-pep'-lus—Gk, *anthos*, flower; Gk, *peplos*, robe.

Distribution.—Interior of Victoria, New South Wales, South Australia, and Western Australia.

Notes.—Also called Black-tailed Parrot, Rock Pebbler, Smoker, Marlock Parakeet, and Mountain Parrot. Usually in pairs or small flocks, frequenting scrub-lands and timber bordering watercourses. It is very similar to the Superb Parrot in habits and economy. Females and immature males are much duller in colour than the adult male.

Nest.—In a hollow limb or hole in a tree.

Eggs.—Four to six, white. Breeding-season: September to December.

5. Red-winged Parrot *Aprosmictus erythropterus* Gmelin

A-pros-mict'-us—Gk, *aprosmictos*, not mixing with others: *c-ryth-rop'-ter-us*—Gk, *erythros*, red; Gk, *pteron*, wing.

Distribution.—Northern Australia, Queensland, and New South Wales.

Notes.—Also called Red-winged Lory and Crimson-winged Parrot. Usually in pairs or small flocks, frequenting scrub-lands and timber bordering watercourses. It is usually a shy and wary species, and has a rather heavy laboured flight when disturbed. While on the wing it frequently utters a loud screeching call. Food: seeds, berries, nectar, and buds of flowers; also insect larvæ of various kinds. Females and immature males differ from the adult male in being duller in colour; they also lack the dark blue back and rump as well as the crimson on the wings.

Nest.—In a hollow limb or hole in a tree.

Eggs.—Three to six, white. Breeding-season: September to December.

6. King Parrot *Aprosmictus scapularis* Lichtenstein

scap-u-lā'-ris—L., *scapularis*, shouldered.

Distribution.—Eastern Australia, from Cairns to Victoria.

Notes.—Also called King Lory. Usually in pairs or small flocks.

inhabiting chiefly heavily timbered ranges and brushes. It is not so active as most Parrots, and its flight is laboured. Although its call-notes are harsh and loud, the male at times utters a soft and musical double note. It feeds almost entirely on native seeds, fruits, and berries; in certain districts it does damage to ripening maize crops.

Nest.—In a hollow limb or hole in a tree.

Eggs.—Three to six, white. Breeding-season: October to December.

7. Red-sided Parrot *Lorius pectoralis* P. L. S. Müller—7A. Female

Lor'-i-us—N.L. from a Malay word for parrot: *pec-tor-ā'-lis*—L., *pectoralis*, breasted.

Distribution.—Northern Queensland (eastern Cape York Peninsula, from the Pascoe River to Rocky River); also occurs in the Aru Islands and New Guinea.

Notes.—This beautiful Parrot was discovered in the scrubs bordering the Pascoe River, where it is fairly plentiful. It feeds on nuts and seeds of tall scrub trees, which it visits at daybreak, returning to its roosting-place at night. The call-note of the male is a long throaty "Kurrrah," uttered at intervals and occasionally repeated rapidly, and the call of the female is a screeching whistle resembling "Kluk kalert."

Nest.—In a large hole in a tall deciduous tree, leafed fig-tree, or Moreton Bay chestnut-tree, growing in the scrub, at heights up to 70 feet from the ground.

Eggs.—Two, white. Breeding-season: October to December.

8. Galah *Kakatoë roseicapilla* Vieillot

Kak-a-tō'-ë—Fr., *kakatoës*, cockatoo: *ro-se-i-cap-ill'-a*—L., *roseus*, rosy; L., *capillus*, hair of the head.

Distribution.—Australia, chiefly inland; accidental to Tasmania.

Notes.—Also called Rose-breasted Cockatoo, Willie-willock, and Willock. Usually in pairs or flocks, frequenting open country, chiefly inland plains interspersed with belts of timber, or trees bordering watercourses. It spends much of its time on the ground feeding on the seeds of grasses and other plants; when disturbed it rises with loud shrill cries. A flock in flight presents a wonderful spectacle of colour, as the birds turn simultaneously exposing their rose-pink underparts. Food: seeds of grasses, plants, trees, bulbs, and roots; it causes considerable damage to crops, but also devours immense quantities of seeds of plant pests.

Nest.—In a hollow limb or hole in a tree; lined with green leaves.

Eggs.—Four or five, white. Breeding-season: September and November (eastern Australia); February and March (north-western Australia).

9. Little Corella *Kakatoë sanguinea* Gould

san-guin'-e-a—L., *sanguineus*, blood-stained.

Distribution.—Northern, central, north-western, and South Australia, and New South Wales; inland chiefly.

Notes.—Also called Bare-eyed Cockatoo and Blood-stained Cockatoo. Usually in pairs or flocks, frequenting open country interspersed with belts of scrub, or timber bordering watercourses. It spends much of its time on the ground feeding on the seeds of grasses and other plants, also on bulbs and roots. It generally feeds just after sunrise and before dusk, spending the rest of the day in a tree, where it occupies itself by stripping off leaves, twigs, and bark, very often completely destroying many trees.

Nest.—In a hollow limb or hole in a tree.

Eggs.—Usually three, white. Breeding-season: August to October.

10. Corella *Kakatoë tenuirostris* Kuhl

ten-u-i-ros'-tris—L., *tenuis*, slender; L., *rostrum*, bill.

Distribution.—Southern, Western, and north-western Australia.

Notes.—Also called Long-billed Cockatoo. Usually in pairs or flocks, frequenting plains or timber bordering watercourses. It spends much of its time on the ground, feeding on the seeds of grasses and other plants and on bulbous roots.

Nest.—In a hollow limb or hole in a tree.

Eggs.—Two to four, white. Breeding-season: August to November.

11. White Cockatoo *Kakatoë galerita* Latham

gal-ēr-ī'-ta—L., *galeritus*, crested.

Distribution.—Australia (except Western Australia, south of the Fitzroy River), King Island, and Tasmania; also occurs in the Molucca Islands and New Guinea.

Notes.—Also called Sulphur-crested Cockatoo. Usually in pairs or flocks, frequenting heavily timbered mountain ranges, open forest-lands, and timber bordering watercourses. The normal food of this Cockatoo consists of seeds and bulbous roots. While the flock is feeding individual birds perch on the topmost branches of a high tree to act as sentinels, giving a shrill screech to warn the flock when an enemy approaches. This species causes considerable damage to crops, chiefly wheat and maize, either when newly planted or when ripening.

Nest.—In a hollow limb or hole in a tree; also in holes in cliffs.

Eggs.—Usually two, white. Breeding-season: August to November.

12. Pink Cockatoo *Kakatoë leadbeateri* Vigors

leadbeateri—Benjamin Leadbeater, a London naturalist.

Distribution.—North-western, Western, and South Australia, and the interior of Victoria, New South Wales, and Queensland.

Notes.—Also called Major Mitchell, Wee Juggler, and Leadbeater's Cockatoo. Usually in pairs or small flocks, frequenting thickly timbered

scrub (mallee chiefly) and arid lands. It spends much of its time on the ground feeding on bulbous roots and the seeds of plants and grasses. When disturbed, it rises with a loud screech, sometimes alighting on a dead tree, but mostly on the ground again.

Nest.—In a hollow limb or hole in a tree.

Eggs.—Three or four, white. Breeding-season: September to November.

13. Gang-gang Cockatoo *Callocephalon fimbriatum* Grant—13A.
Female.

Cal-lo-ceph'-al-on—Gk, *callos*, beauty; Gk, *cephale*, head: *fim-bri-ā-tum*—L., *fimbriatus*, fringed.

Distribution.—New South Wales, Victoria, Tasmania, King Island, and formerly in South Australia.

Notes.—Also called Red-headed Cockatoo or Parrot, Red-crowned Cockatoo or Parrot, and Galah. Usually in pairs or small flocks, frequenting chiefly heavily timbered mountain ranges. It procures most of its food in trees, and is generally seen feeding on the seeds of eucalypts as well as different species of acacia. It has a peculiar wheezy call-note, and when feeding also utters a quaint growling sound. Food: seeds of various kinds of trees, particularly acacias, generally eaten when green.

Nest.—In a hollow limb or hole in a tree, at a considerable height from the ground.

Eggs.—Usually two, white. Breeding-season: October to December or January.

14. Glossy Black Cockatoo *Calyptorhynchus lathami* Temminck

Cal-ŷpt-o-rhynch'-us—Gk, *calyptos*, hidden; Gk, *rhynchos* (*rhugchos*), beak: *lathami*—John Latham (1740-1837), famous English ornithologist who described many Australian birds.

Distribution.—From central Queensland to Victoria and South Australia (Kangaroo Island).

Notes.—Also called Leach's Black Cockatoo. Usually in pairs or small flocks, frequenting heavily timbered mountain ranges and open forest-lands. It is generally seen feeding on different species of casuarinas, the seeds of which appear to constitute its principal food. When feeding it is easy to approach, and when alarmed it moves, with a particularly laboured and heavy flight, to a nearby tree.

Nest.—In a hollow limb or hole in a tree.

Egg.—Dull white. Breeding-season: March to August.

15. Yellow-tailed Black Cockatoo *Calyptorhynchus funereus* Shaw
fun-er'-e-us—L., *funereus*, *funereal*, black.

Distribution.—From central Queensland to Victoria and South Australia, King Island, and Tasmania.



MANGROVES

Photo. K. A. Hindwood



MANGROVE SWAMP

Photo G. F. Hill

Notes.—Also called Funereal Black Cockatoo and Black Cockatoo. Usually in pairs or small flocks, frequenting heavily timbered mountain ranges and adjacent open forest-lands, also banksia scrubs during the winter months. It has a slow, laboured flight, and when on the wing usually utters a weak but harsh and discordant cry. Usually it is shy and wary, but occasionally while feeding the observer can approach quite near before it flies off. Its food consists mostly of seeds of banksias, casuarinas, and hakeas, and large white horny grubs found living in eucalypts. To reach these grubs it tears off the bark and wood with its powerful bill, often making holes 8 or more inches in depth into a branch or tree-trunk. It is considered a useful bird, helping to keep in check many timber-destroying insect pests.

Nest.—In a hollow limb or hole in a tree, usually high up from the ground.

Eggs.—Usually two, white. Breeding-season: May, June, and July (Queensland); December and January in the south.

16. Red-tailed Black Cockatoo *Calyptorhynchus banksi* Latham

banksi—Sir Joseph Banks (1743-1820), a naturalist, companion of Captain Cook on his first voyage (1768).

Distribution.—Australia (except Cape York), and King Island.

Notes.—Also called Banks's Black Cockatoo and Banksian Black Cockatoo. Usually in pairs or small flocks, frequenting alike heavily-timbered and open forest-lands, also banksia scrubs. Its food consists chiefly of seeds of eucalypts, casuarinas, and banksias, and also large white grubs, the larvæ of longicorn beetles. It is very similar in habits to the Yellow-tailed Black Cockatoo. The female is duller in colour than the male, and has yellow spots on the head, neck, and cheeks, and black bars on the red portion of the tail-feathers.

Nest.—In a hollow limb or hole in a tree.

Egg.—White. Breeding-season: May to July.

17. White-tailed Black Cockatoo *Calyptorhynchus baudini* Lear

baudini—Captain Baudin (1756-1803), of a French scientific expedition to Australia.

Distribution.—South-western Australia, to Murchison River.

Notes.—Also called Baudin's Black Cockatoo. Usually in pairs or small flocks, frequenting heavily timbered and open forest-lands, also banksia scrubs. It is similar in habits and economy to the other species of the genus.

Nest.—In a hollow limb or hole in a tree.

Eggs.—Two, white. Breeding-season: August to October.

18. Palm Cockatoo *Probosciger aterrimus* Gmelin

Pro-bos'-ci-ger—Gk, *proboscis*, nose; Gk, *gero*, to carry: *a-terr'-i-mus*—L., *aterrimus*, very black.

Distribution.—Northern Queensland (Cape York district only); also occurs in the Aru Islands and New Guinea.

Notes.—Also called Cape York Cockatoo and Great Palm Cockatoo. Usually in pairs or small flocks, frequenting the scrubs and open forests. It breeds in the forest country, and feeds in the scrub on the kernels of large fruits and on grubs torn out of rotten wood. On several occasions a flock of these birds has been seen at play in a big tree, going through a series of displays and antics. A favourite food is the hard nut or stone of the nonda plum or weeba-tree.

Nest.—In a hole either in a dead stump or a tree; if in a tree, usually about 35 feet from the ground, and of an average depth of 4 feet from the entrance; lined with splintered twigs.

Egg.—White. Breeding-season: August to January.



PARROTS OF THE OPEN FOREST AND SCRUB-LANDS

PLATE XXI

PARROTS OF THE OPEN FOREST AND SCRUB-LANDS

1. Hooded Parrot *Psephotus dissimilis* Collett—1A. Female

Pseph-ō'-tus—Gk, *psephotus*, inlaid with pebbles: *dis-sim'-il-is*—L., *dissimilis*, unlike.

Distribution.—Northern Territory.

Notes.—Usually in pairs or small flocks, inhabiting the open forest-lands and spinifex country. It possesses a singular jarring call-note; it is generally observed feeding on the ground on grass seeds. When disturbed, it flies to a nearby tree; its flight is swift and slightly undulating. Food: seeds of grasses and herbaceous plants.

Nest.—In a termites' mound. Usually in the large magnetic and spire-shaped termitaria. This bird makes an entrance tunnel, at the end of which it excavates a nesting-chamber.

Eggs.—Four to six, white. Breeding-season: not recorded, probably May to January.

2. Golden-shouldered Parrot *Psephotus chrysopterygius* Gould

chrŷs-op-ter-yg'-i-us—Gk, *chrysos*, golden; Gk, *pteryx* (*pterygos*), wing.

Distribution.—Northern Queensland, from Normanton to the Watson River.

Notes.—Also called Golden-winged Parrot. Usually in pairs or small flocks, inhabiting open forest country, preferably areas dotted with magnetic and spire-shaped termitaria; it also inhabits mangroves. It is an active bird, and has, in addition to the typical "Cluk-cluk" note, a soft and pleasing whistle resembling "Joe-joe," with an occasional "Jeeo." It is generally observed feeding on the ground. Food: seeds of grasses and herbaceous plants. The female is similar to the female Hooded Parrot.

Nest.—In a termites' mound, like that of the Hooded Parrot.

Eggs.—Four to six, white. Breeding-season: April and May.

3. Paradise Parrot *Psephotus pulcherrimus* Gould—3A. Female

pul-cher'-rim-us—L., *pulcherrimus*, very pretty.

Distribution.—Queensland; also northern New South Wales.

Notes.—Also called Beautiful Parrot and Ground Parrot. This extremely rare and beautiful Parrot frequents sparsely timbered grass-lands, where it is usually in pairs or small flocks. It was for many years

considered "lost," but recently isolated pairs have been recorded. It is generally observed feeding on the ground, and when disturbed flies to a nearby tree. Food: seeds of grasses and herbaceous plants.

Nest.—A hollowed-out chamber in a termites' mound on the ground, entered through a narrow tunnel.

Eggs.—Three to five, white. Breeding-season: usually August to December, and as late as March or April.

4. Red-backed Parrot *Psephotus hæmatonotus* Gould—4A. Female hæ'-mat-o-nōt'-us—Gk, *haima*, *haimatos*, blood; Gk, *noton*, back.

Distribution.—South-western Queensland, New South Wales, Victoria, and South Australia.

Notes.—Also called Red-rumped Parrot, Grass Parrot, and Ground Parrot. Usually in pairs or flocks, frequenting sparsely timbered grasslands. It is more often seen on the ground than in trees. The call-note is a pleasing whistle, almost a song, which is uttered while the bird is perched in a tree or when in flight. Food: seeds of grasses and other plants.

Nest.—In a hollow limb or hole in a tree.

Eggs.—Four to seven, white. Breeding-season: September to November or December.

5. Mulga Parrot *Psephotus varius* Clark
var'-i-us—L., *varius*, different.

Distribution.—Central Australia, inland from southern Queensland to Victoria to Western Australia.

Notes.—Also called Many-coloured Parrot and Varied Parrot. Usually in pairs or family parties, frequenting open scrub-lands and timber bordering watercourses. It spends much of its time on the ground in search of seeds of grasses and herbaceous plants; it is by no means shy. When disturbed, it flies to a nearby tree, returning to the ground again immediately the observer moves away. Its note is a slight chattering call, or whistle, often repeated.

Nest.—In a hollow limb or hole in a tree—usually a eucalyptus bordering a watercourse.

Eggs.—Four to six, white. Breeding-season: July to December.

6. Little Blue Bonnet *Psephotus narethæ* H. L. White
narethæ—Naretha, on Transcontinental Railway (Western Australia).

Distribution.—South-eastern portion of Western Australia.

Notes.—Also called Naretha Parrot. Usually in pairs, family parties, or flocks, inhabiting open country dotted with patches of scrub. It has a soft, flute-like note resembling "Cloote-cloote." Generally observed feeding on the ground or in low shrubs. Food: seeds of grasses and herbaceous plants.

Nest.—In a hole in a tree—chiefly a casuarina.

Eggs.—Four to six, white. Breeding-season: August to December.

7. Blue Bonnet *Psephotus hæmatogaster* Gould

hæ-mat-o-gas'-ter—Gk, *haima*, *haimatos*, blood; Gk, *gaster*, belly.

Distribution.—Inland from southern Queensland to Victoria, and South Australia.

Notes.—Also called Crimson-bellied Parrot, Yellow-vented Parakeet, and Bulloak Parrot. Usually in pairs or small flocks, inhabiting timber bordering watercourses and open country dotted with scrub. It is generally observed feeding on the ground and is by no means shy; when flushed it flies to a nearby tree. Food: seeds of grasses and herbaceous plants.

Nest.—In a hollow limb or hole in a tree.

Eggs.—Three to seven, white. Breeding-season: August to December.

8. Cockatiel *Leptolophus hollandicus* Kerr

Lep'-to-loph'-us—Gk, *leptos*, delicate; Gk, *lophos*, crest: *hollandicus*—of (New) Holland.

Distribution.—Interior of Australia generally; accidental to Tasmania.

Notes.—Also called Quarrian and Cockatoo Parrot. Usually in pairs or flocks, inhabiting timber bordering watercourses and open country dotted with scrub. It appears to be nomadic in habits, its movements being regulated by the supply of food. It is generally seen on the ground searching for food, and, when disturbed, usually flies to a dead tree. It has a pleasant chattering note. Food: seeds of grasses and herbaceous plants. The female is duller in colouring than the male and differs in having the tail barred.

Nest.—In a hollow limb, a hole in a tree, or in a stump. Mostly rather large holes in dead trees are selected.

Eggs.—Four to seven, white. Breeding-season: August to December.

9. Eastern Rosella *Platycercus eximius* Shaw

Plat-y-cerc'-us—Gk, *platys*, flat; Gk, *cercos*, tail: *ex-im'-i-us*—L., *eximius*, excellent.

Distribution.—From southern Queensland to Victoria to South Australia (Adelaide Hills), and Tasmania.

Notes.—Also called Rosella, Rosehill Parakeet, and Nonpareil Parrot. Usually in pairs or flocks, inhabiting open forest country and partly cleared lands. It spends much of its time on the ground in search of seeds of grasses, which, with wild fruits and berries, constitute its normal food. It is destructive in orchards and cultivation paddocks to such an extent that it is considered a pest. When disturbed, it flies to a nearby tree; its flight is short and undulating; its call is a pleasant whistling note.

Nest.—In a hollow limb or hole in a tree.

Eggs.—Four to nine, white. Breeding-season: September to January.

10. Yellow Rosella *Platycercus flaveolus* Gould

flav'-e-öl-us—L., *flaveolus*, yellowish.

Distribution.—Interior of New South Wales, Victoria and South Australia (Murray River valley).

Notes.—Also called Yellow Parrot, Yellow-rumped Parakeet, Murray Smoker, and Swamp Lory. Usually in pairs or small flocks, inhabiting chiefly timber bordering watercourses, and the adjoining open country. It is generally seen on the ground in search of seeds of grasses and other plants. When disturbed, it flies to the nearest timber, uttering its whistling call-note while on the wing. There is considerable variation in the plumage of this species.

Nest.—In a hollow limb or hole in a tree.

Eggs.—Four or five, white. Breeding-season: September to December or January.

11. Western Rosella *Platycercus icterotis* Kuhl

ic-ter-ō'-tis—Gk, *icteros*, yellow; Gk, *otos*, genitive of *ous*, ear.

Distribution.—South-western Australia.

Notes.—Also called Yellow-cheeked Parrot. Usually in pairs or small flocks, inhabiting open forest-lands and partly cleared country. It is known to be fearless, and is common about homesteads and gardens. Food: seeds of grasses and other plants; also wild fruits and berries.

Nest.—In a hollow limb or hole in a tree.

Eggs.—Three to six or seven, white. Breeding-season: August to November.

12. Pale-headed Rosella *Platycercus adscitus* Latham.

ad-scī'-tus—L., *adscitus*, adopted, new.

Distribution.—Eastern Queensland and northern New South Wales.

Notes.—Also called Blue-cheeked Parrot and Moreton Bay Rosella. Usually in pairs or small flocks, inhabiting open forest-lands. There is considerable variation in the plumage of this species; resembles the other Rosellas in habits and economy.

Nest.—In a hollow limb or hole in a tree.

Eggs.—Three to five, white. Breeding-season: in New South Wales, September to December; in Queensland, at any time of the year after rains.

13. Green Rosella *Platycercus caledonicus* Gmelin

caledonicus—of (New) Caledonia (in error, the bird inhabits Tasmania).

Distribution.—Tasmania and the islands of Bass Strait.

Notes.—Also called Yellow-bellied Parakeet and Green Parrot. Usually in pairs or flocks, inhabiting open forest and partly cleared areas as well as heavily timbered country. It is generally seen either feeding

among the blossoms of flowering eucalypts or searching on the ground for seeds of grasses and other plants. In certain districts it is common about homesteads.

Nest.—In a hollow limb or hole in a tree.

Eggs.—Four or five, white. Breeding-season: November and December.

14. Northern Rosella *Platycercus venustus* Kuhl

ven-ust'-us—L., *venustus*, comely.

Distribution.—North-western Australia and Northern Territory.

Notes.—Also called Smutty Parrot, Brown's Parrot, and Brown's Parakeet. Usually in pairs or small flocks, inhabiting open forest country; it is often observed in mangroves. It frequently utters a rapid succession of double notes resembling "Trin-se trin-se." Its flight is low and somewhat rapid, taking a zigzag course. Food: seeds of grasses and herbaceous plants, and native fruits and berries.

Nest.—In a hollow limb or hole in a tree.

Eggs.—Two or three, white. Breeding-season: August to October.

15. Adelaide Rosella *Platycercus adelaidæ* Gould

adelaidæ—city of Adelaide, South Australia.

Distribution.—South Australia (Mount Lofty and Flinders Ranges).

Notes.—Usually in pairs or small flocks, inhabiting open forest and partly cleared lands. It is very similar in habits and economy to the Eastern Rosella.

Nest.—In a hollow limb or hole in a tree.

Eggs.—Five to seven, white. Breeding-season: September to December.

16. Crimson Rosella *Platycercus elegans* Gmelin

el'-e-gans—L., *elegans*, handsome.

Distribution.—From Cape York to Victoria, Kangaroo Island, and King Island; also occurs on Norfolk Island.

Notes.—Also called Crimson Parrot, Pennant's Parakeet, Red Lory, and Mountain Lowry. Usually in pairs or flocks, frequenting alike heavily timbered ranges, brushes, big scrubs, open forest, and partly cleared lands. It is generally observed feeding either on the ground upon the seeds of grasses and other plants, or in blossom, fruit, and berry-bearing trees. Its call is a shrill screech; it also utters a chattering note when feeding. It is very destructive in orchards.

Nest.—In a hollow limb or hole in a tree, usually close to the ground.

Eggs.—Six to eight, white. Breeding-season: October to January.

17. Cloncurry Parrot *Barnardius macgillivrayi* North

Barnardius—Edward Barnard, ornithologist, member of Linnean Society, London: *macgillivrayi*—Alexander Sykes MacGillivray, Leilavale Station, Cloncurry, Northern Queensland.

Distribution.—Interior of northern Queensland.

Notes.—Usually in pairs or small flocks, frequenting open forest country, scrub-lands, and belts of timber bordering watercourses. Similar in habits and economy to the Ringneck Parrot.

Nest.—In a hollow limb of a tree (A. J. Marshall).

Eggs.—Four or five white, the latter number laid in captivity; three infertile of which are the types (Dr A. Lenden).

18. Ringneck Parrot *Barnardius barnardi* Vigors and Horsfield
barnardi—Edward Barnard.

Distribution.—Interior of southern Queensland, New South Wales, north-western Victoria, and South Australia, and Flinders Range (South Australia).

Notes.—Also called Mallee Parrot, Barnard's Parakeet, Bulla-Bulla, and Buln Buln. Usually in pairs or small flocks, inhabiting scrub and open forest-lands, or timber bordering watercourses. It is generally seen on the ground searching for the seeds of grasses and other plants. At other times it may be observed feeding on the flower-buds of eucalypts, and when thus engaged it keeps up a continuous chatter. Food: seeds of grasses and herbaceous plants; also native fruits, berries, and flowers.

Nest.—In a hollow limb or hole in a tree.

Eggs.—Four to six, white. Breeding-season: July to December.

19. Port Lincoln Parrot *Barnardius zonarius* Shaw
zō-nā'-ri-us—L., *zonarius*, banded.

Distribution.—From South Australia (Spencer Gulf) to central Australia, Western Australia (Murchison River), and north-western Australia.

Notes.—Also called Yellow-banded Parrot and Banded Parrot. Usually in pairs or small flocks, inhabiting open forest, scrub-lands, or belts of timber bordering watercourses. It is like the Ringneck Parrot in habits and economy.

Nest.—In a hollow limb or hole in a tree.

Eggs.—Four or five, white. Breeding-season: August to November generally (but varies according to the seasonal conditions in different localities).

20. Twenty-eight Parrot *Barnardius semitorquatus* Quoy and Gaimard
semi-tor-quā'-tus—L., *semi*, half; L., *torquatus*, collared.

Distribution.—South-western Australia, from Albany to Perth.

Notes.—Usually in pairs or flocks, inhabiting open forest and scrub-lands. It is named "Twenty-eight" from its call. In habits and economy it resembles the other members of the genus.

Nest.—In a hollow limb or hole in a tree.

Eggs.—Four to six or seven, white. Breeding-season: August to December.

21. Red-capped Parrot *Purpureicephalus spurius* Kuhl

Pur-pu'-re-i-ceph'-a-lus—L., *purpureus*, purple; Gk, *cephale*, head: *spu'-rius*—L., *spurius*, false.

Distribution.—South-western Australia.

Notes.—Also called King Parrot. Usually in pairs or small flocks, inhabiting forest and scrub-lands. It is generally observed in the tall eucalypts, upon the seeds of which it feeds. It also feeds on the seeds of grasses and other plants; at times it is destructive in orchards. It has a peculiar harsh grating call-note repeated several times.

Nest.—In a hollow limb or hole in a tree.

Eggs.—Five or six, white. Breeding-season: August to November.

PLATE XXII

PARROTS OF THE TREE-TOPS AND OPEN SPACES

1. Blue-winged Parrot *Neophema chrysostoma* Kuhl

Ne-o-phēm'-a—Gk, *neos*, new; Gk, *pheme*, voice: *chrȳs-o-stom'-a*—Gk, *chrysos*, golden; Gk, *stoma*, mouth.

Distribution.—New South Wales, Victoria, South Australia, King Island, and Tasmania.

Notes.—Also called Blue-banded Grass-parrot. Usually in pairs or small flocks, frequenting the grass-lands and sparsely timbered country. It is nomadic in habits, and is found either on the coastal sandhills or in the inland areas. It appears to be a definite migrant to Tasmania, where it usually arrives during September, remains to breed, and departs in February or March. Like the other members of the genus this species is generally seen feeding among the grass and it will often allow an observer to approach quite closely before it flies away. When disturbed, the birds usually rise simultaneously, uttering feeble call-notes, but soon settle again, either on the ground or in a nearby tree. Food: seeds of grasses and herbaceous plants.

Nest.—In a hole in a tree, stump, or log.

Eggs.—Five to seven, pure white. Breeding-season: October to January.

2. Orange-breasted Parrot *Neophema chrysogaster* Latham

chrȳs-o-gas'-ter—Gk, *chrysos*, golden; Gk, *gaster*, belly.

Distribution.—New South Wales, Victoria, South Australia, and Tasmania.

Notes.—Also called Orange-bellied Grass-parrot. Usually in pairs or small flocks, frequenting grass-lands or partly timbered areas. Like the Blue-winged Parrot this species is a summer visitant to Tasmania. It is becoming extremely rare, both on the mainland and in Tasmania. In habits and economy it is similar to the Blue-winged Parrot.

Nest.—Usually in a hole in a limb; sometimes in a stump or log lying on the ground.

Eggs.—Four or five, pure white. Breeding-season: November to January.

3. Elegant Parrot *Neophema elegans* Gould

ēl'-e-gans—L., *elegans*, handsome.

Distribution.—New South Wales, Victoria, South Australia, and Western Australia.

Notes.—Also called Grass-parrot and Elegant Grass-parrot. Usually in pairs or small flocks, frequenting the grass-lands, often out on the plains away from trees, barren sandy belts bordering the coast, and sparsely timbered areas. It is nomadic in habits and generally very shy. When flushed, it flies in a peculiar zigzag manner, sometimes alighting on the ground within a short distance, but more frequently ascending to a great altitude and disappearing from sight. Food: seeds of grasses and herbaceous plants.

Nest.—In a hole in a branch of a tree.

Eggs.—Four or five, pure white. Breeding-season: August to October.

4. Rock Parrot *Neophema petrophila* Gould

pet-roph'-il-a—Gk, *petros*, rock; Gk, *philos*, fond of.

Distribution.—Coasts of South Australia and Western Australia.

Notes.—Also called Rock Parakeet. Usually in pairs or small flocks, chiefly frequenting the islands off the coast, and swampy situations of the coastal areas. Its flight is swift and erratic; at times it mounts to a great height in the air. Strangely enough, it appears to select the most exposed and bleak situations possible in which to dwell and breed. Food: seeds of grasses and herbaceous plants. A favourite food is the seed of a species of *Mesembryanthemum*, common on most islands off the south-western coast.

Nest.—In a hole in a cliff or in a cavity under a rock.

Eggs.—Four or five, pure white. Breeding-season: September to December.

5. Bourke Parrot *Neophema bourki* Gould

bourki—Bourke, New South Wales.

Distribution.—Interior of Queensland, western New South Wales, Victoria, South Australia, Western Australia, and central Australia.

Notes.—Also called Bourke's Grass-parrot, Night Parrot, and Pink-bellied Parrot. Usually in pairs or small flocks, frequenting thick acacia scrubs. It passes most of its time on the ground searching for the seeds of various grasses, herbaceous plants, and acacia trees, which constitute its food. It also has the peculiar habit of visiting the watering places after dark or before dawn.

Nest.—In a hollow limb or hole in a tree.

Eggs.—Four or five, pure white. Breeding-season: August to October.

6. Turquoise Parrot *Neophema pulchella* Shaw

pul-chel'-la—L., *pulchellus*, pretty.

Distribution.—Southern Queensland, New South Wales, Victoria, and South Australia.

Notes.—Also called Beautiful Grass-parrot, Chestnut-shouldered Grass-parrot, and Chestnut-winged Grass-parrot. Usually in pairs or small flocks, frequenting the grass-lands bordering open forest country. It spends most of its time on the ground searching for the seeds of grasses and herbaceous plants, which constitute its food. When flushed it flies swiftly to the nearest timber, uttering a feeble call-note. This species is extremely rare, probably verging on extinction. The female is very like the female Scarlet-chested Parrot.

Nest.—In a hollow limb or hole in a tree, occasionally in a stump or log lying on the ground.

Eggs.—Four or five, pure white. Breeding-season: August to December.

7. Scarlet-chested Parrot *Neophema Splendida* Gould—7A. Female *splen'-did-a*—L., *splendidus*, bright.

Distribution.—New South Wales, Victoria, South Australia, and Western Australia.

Notes.—Also called Splendid Grass-parrot and Orange-throated Grass-parrot. Rarely recorded, then only as isolated pairs. It appears to inhabit dry inland areas interspersed with patches of low scrub, often far from water. In habits it is said to resemble the other species of this genus. Food: seeds of grasses and herbaceous plants.

Nest.—In a hole in a tree or hollow limb.

Eggs.—Four, pure white and almost lustreless. Breeding-season: September is the only month recorded.

8. Blue-browed Lorilet *Opopsitta coxeni* Gould

Op-op-sitt'-a—error in spelling = *Cyclopsitta*—Gk, *cyclops*, round-faced; Gk, *psitte*, parrot: *coxeni*—Charles Coxen of Queensland, ornithologist, and brother-in-law of John Gould.

Distribution.—South-eastern Queensland and north-eastern New South Wales.

Notes.—Also called Red-faced Lorilet and Fig Parrot. Usually in small flocks, inhabiting the brushes and big scrubs. Very little is known of its habits, except that it frequents the tall fruit-bearing trees, chiefly the different species of ficus. It is exceptionally quiet and difficult to observe. Food: native fruits and berries.

Nest.—In a hollow stump.

Eggs.—Two, pure white, and with a slight lustre on the shell (Kinghorn).

9. Red-browed Lorilet *Opopsitta leadbeateri* McCoy

leadbeateri—Leadbeater, a past assistant, National Museum, Melbourne.

Distribution.—Northern Queensland.

Notes.—Also called Blue-faced Lorilet or Fig Parrot. Usually in small flocks, inhabiting the big scrubs and forest country. It is generally observed in fruit-bearing trees, chiefly native figs, being at all times remarkably quiet. Mostly the only indication of its presence is that afforded by the quantity of fruit that drops while it is feeding; even then it is difficult to locate among the leaves. Food: native fruits and berries.

Nest.—In a hole in a tree, usually about 40 feet from the ground.

Eggs.—Three or four, white. Breeding-season: September to November.

10. Little Lorikeet *Glossopsitta pusilla* Shaw

Gloss-op-sit'-ta—Gk, *glossa*, tongue; Gk, *psitte*, parrot: *pu-sil'-la*—L., *pusillus*, very small.

Distribution.—Eastern Australia (from Cairns to Victoria), South Australia, and Tasmania.

Notes.—Also called Little Keet, Jerryang, and Green Parakeet. Usually in flocks, chiefly frequenting flowering eucalypts and other blossom or fruit-bearing trees. Generally it is remarkably fearless and noisy, both while feeding and when in flight. Its flight is swift, and flocks of these birds travel great distances in search of flowering trees. Occasionally it does considerable damage in orchards. Food: nectar, native and cultivated fruits, and berries.

Nest.—In a hole in a tree, usually at about 20 feet from the ground.

Eggs.—Two, white. Breeding-season: August to December.

11. Purple-crowned Lorikeet *Glossopsitta porphyrocephala* Dietrichsen

por-phyr'-o-ceph'-a-la—Gk, *porphyrios*, purple; Gk, *cephale*, head.

Distribution.—Southern Australia.

Notes.—Also called Purple-crowned Keet. Usually in flocks, frequenting flowering eucalypts and other blossom or fruit-bearing trees. It is very similar in habits to the Little Lorikeet, and, like that species, is nomadic, its movements being regulated by the various flowering seasons of our eucalypts. Its flight is swift; it utters its sharp screeching notes when on the wing, and constantly while feeding. Food: nectar, native and cultivated fruits, and berries.

Nest.—In a hollow limb or hole in a tree.

Eggs.—Usually two, white. Breeding-season: usually September to November.

12. Musk Lorikeet *Glossopsitta concinna* Shaw

con-cin'-na—L., *concinus*, pretty.

Distribution.—Southern Queensland to Victoria, South Australia, and Tasmania.

Notes.—Also called Green Keet and Green Leek. Usually in flocks, frequenting flowering eucalypts and other blossom or fruit-bearing trees. It is nomadic in habits, and is often in the company of other species of Lorikeets. It is considered a pest, as it does considerable damage in orchards. Food: nectar, native and cultivated fruits, and berries.

Nest.—In a hollow limb or hole in a tree.

Eggs.—Usually two, white. Breeding-season: August to December.

13. Varied Lorikeet *Psittenteles versicolor* Lear

Psitt-ēū'-tel-ēs—Gk, *psitte*, parrot; Gk, *euteles*, paltry: *ver'-si-col-or*—L., *versicolor*, different coloured.

Distribution.—Tropical northern Australia.

Notes.—Usually in flocks, frequenting the flowering eucalypts and melaleucas. It appears to be nomadic in habits, and resembles the Musk Lorikeet in its flight and call-notes. Food: nectar and flowers.

Nest.—In a hollow or hole in a tree.

Eggs.—Usually two, white. Breeding-season: May to January.

14. Scaly-breasted Lorikeet *Trichoglossus chlorolepidotus* Kuhl

Trich-o-gloss'-us—Gk, *trichos*, hair; Gk, *glossa*, tongue: *chlōr-o-lep-id-ō'-tus*—Gk, *chloros*, yellow-green; Gk, *lepidotus*, scaly.

Distribution.—Northern and eastern Queensland and eastern New South Wales.

Notes.—Usually in flocks, inhabiting open forest country and cultivated fields; it is generally observed among the flowering eucalypts. It is nomadic, and resembles the Musk and Little Lorikeets in habits. At times it does considerable damage in orchards. Food: nectar, native and cultivated fruits, and berries.

Nest.—In a hollow limb or hole in a tree.

Eggs.—Usually two, white. Breeding-season: May or June to January.

15. Red-collared Lorikeet *Trichoglossus rubritorquis* Vigors and Horsfield

ru-bri-tor'-quis—L., *ruber*, red; L., *torques*, collar.

Distribution.—North-western Australia, Northern Territory, and the Gulf of Carpentaria (northern Queensland).

Notes.—Usually in flocks, frequenting the flowering eucalypts and other nectar-bearing trees. It is said to resemble the Rainbow Lorikeet in habits and economy.

Nest.—In a hollow limb or hole in a tree.

Eggs.—Usually two, white. Breeding-season: May to December.

16. Rainbow Lorikeet *Trichoglossus moluccanus* Gmelin
moluccanus—of the Molucca Islands.

Distribution.—Eastern Australia, South Australia, and Tasmania.

Notes.—Also called Blue Mountain Parrot and Blue-bellied Lorikeet.



PARROTS OF THE TREE-TOPS AND OPEN SPACES

Usually in flocks, frequenting the flowering eucalypts, and often in the company of the Scaly-breasted, Musk, and Little Lorikeets. Its flight is swift and the flocks travel great distances seeking blossom-laden trees. It utters an incessant chattering and screeching while feeding, and a sharp call-note when on the wing. It does considerable damage in orchards and on this account is considered a pest. Food: nectar, flowers, and native and cultivated fruits.

Nest.—In a hollow limb or hole in a tree.

Eggs.—Usually two, white. Breeding-season: usually October to January.

17. Budgerigar *Melopsittacus undulatus* Shaw

Mel-op-sitt'-ac-us—Gk, *melos*, song; Gk, *psittacos*, parrot: *un-du-lā'-tus*—L., *undulatus*, marked with waves.

Distribution.—Australia, chiefly the inland areas.

Notes.—Also called Shell Parrot, Warbling Grass-parrot, Canary Parrot, Zebra Parrot, Betcherrygah, and Love-bird. Usually in flocks, inhabiting the open country, chiefly those areas interspersed with belts of timber, or isolated patches of scrub. It is a migratory species, and generally appears in the southern portions of the continent in late winter or early spring, departing during February or March. It is generally observed feeding in the grass, and when disturbed, rises with the rest of the flock and settles in the nearest tree. While feeding, or when perched in a tree it is constantly warbling and chattering in a most pleasing manner. Its flight is remarkably straight and rapid, and is generally accompanied by screeching call-notes. Food: seeds of grasses and herbaceous plants.

Nest.—In a hollow limb or hole in a tree.

Eggs.—From four to eight, pure white. Breeding-season: usually October to December.

18. Swift Parrot *Lathamus discolor* Shaw

Lathamus—Dr John Latham (1740-1837), English ornithologist who published in 1801 the first descriptions of many Australian birds: *dis'-col-or* L., *discolor*, different coloured.

Distribution.—South-eastern Australia and Tasmania.

Notes.—Also called Red-shouldered Parrot, Swift-flying Parakeet, and Swift-flying Lorikeet. Usually in flocks, frequenting the flowering eucalypts and other nectar-bearing trees. It is a migratory species in Tasmania, but appears to be nomadic on the mainland. In the north-eastern portion of New South Wales its movements coincide with the flowering of the various species of eucalypts. It is aptly named Swift Parrot, as its flight is remarkably rapid; mostly one hears its screeching note and sees a flash of green as it passes overhead. Food: nectar and flowers.

Nest.—In a hollow limb or hole in a tree.

Eggs.—Usually two, white. Breeding-season: November to January.

19. Ground Parrot *Pezoporus wallicus* Kerr

Pez'-o-por'-us—Gk, *pezoporos*, going on foot: *wallicus*—of (New South) Wales.

Distribution.—Coastal areas of New South Wales, Victoria, South Australia, south-western Australia, and Tasmania; also recorded from Frazer Island (Queensland).

Notes.—Also called Swamp Parrot. This extremely shy and rare Parrot inhabits the swampy heath-lands, where it is mostly observed singly or in pairs. Owing to its recluse habits and great running powers, it is seldom or rarely seen until flushed. When disturbed, it rises in much the same manner as a Quail, flies rapidly away across the swamp, and then suddenly hurls itself down into cover again. It emits a strong scent, like ordinary game-birds, consequently dogs will set it, sportsmen shooting it to add to the game-bag. Its flesh is excellent eating, and said to be the equal of Quail or Snipe. Food: seeds of grasses and herbaceous plants.

Nest.—A hollow in the ground, lined with grass, and situated in rushes or thick grass.

Eggs.—Three or four, white. Breeding-season: September to December.

20. Night Parrot *Geopsittacus occidentalis* Gould

Gē-o-psi'-ta-cus—Gk, *ge*, earth; Gk, *psittacos*, parrot: *oc-ci-den-tā'-lis*—L., *occidentalis*, western.

Distribution.—The inland areas of Western Australia, South Australia, and central Australia.

Notes.—Little is known of the habits of this extremely rare species except that it inhabits the sandstone ranges, spinifex country, and shrubby samphire flats. It is nocturnal in habits, seeking cover in rocky caves and tussocks of spinifex during the day, venturing out to drink at the nearest water at dusk, and to feed on the seeds of spinifex and other grasses. The aborigines call it "Myrrlumbing" from the supposed resemblance of its whistling note; when alarmed, it utters a peculiar note, like the croak of a frog. Food: seeds of various grasses.

Nest.—A depression in the ground, usually under spinifex grass.

Eggs.—Four or five, white. Breeding-season: not recorded.

PLATE XXIII

SOME BIRDS OF THE MANGROVES

1. Large-billed Warbler *Gerygone magnirostris* Gould

Gē-ryg'-on-ē—Gk, *gerygone*, born of sound: *mag-ni-ros'-tris*—L., *magnus*, great; L., *rostrum*, bill.

Distribution.—Northern Territory and northern Queensland (Cape York to Cardwell district).

Notes.—Also called Large-billed Bush-warbler, Large-billed Fly-eater, and Flood-bird. Inhabits the mangroves, where it spends most of its time among the leaves and blossoms capturing the smaller kinds of insects; it has an extremely weak, twittering song.

Nest.—A dome-shaped structure with a hooded entrance at the side; several inches of nesting material hang from the body of the nest, which is composed of fine bark woven together with wool and spiders' webs; lined with feathers. Placed in the foliage of a mangrove tree, at about 7 feet from the ground.

Eggs.—Two, white, heavily marked on the larger end with reddish-brown markings. Breeding-season: November (Melville Island).

2. Green-backed Warbler *Gerygone chloronota* Gould

chlōr-o-nōt'-a—Gk, *chloros*, yellow-green; Gk, *noton*, back.

Distribution.—North-western Australia and Northern Territory.

Notes.—Also called Green-backed Fly-eater. Inhabits the mangroves and adjacent scrubs; it is very shy and retiring in disposition and difficult to locate among the leaves of the mangroves as it creeps about in search of insects upon which it solely subsists; it has a piping note though occasionally other notes are uttered in slow succession.

Nest.—Similar in shape to that of the Large-billed Warbler; composed of soft shreds of grass and fine rootlets, and thickly lined with thistledown. Built among the foliage of a mangrove tree.

Eggs.—Two or three, white, freely marked with fine, elongated, reddish-brown dots, which predominate at the larger end, sometimes forming a zone. Breeding-season: December.

3. Dusky Warbler *Gerygone tenebrosa* Hall

ten-e-brō'-sa—L., *tenebrosus*, dark.

Distribution.—Mid and north-western Australia, from Carnarvon to the Fitzroy River.

Notes.—Inhabits the mangroves; similar in habits to the other Warblers; has a plaintive little song, also a harsh scolding note.

Nest.—Similar to that of the Large-billed Warbler; very neatly made and composed of shreds of bark and spiders' webs. Placed in a mangrove tree up to 8 feet or more from the ground.

Eggs.—Two, white, with reddish-brown dots and splashes, rather freely distributed over the larger end. Breeding-season: October (Port Hedland).

4. Mangrove-warbler *Gerygone cantator* Weatherill

can-tā'-tor—L., *cantator*, singer.

Distribution.—South-eastern Queensland.

Notes.—Also called Singing Warbler, Singing Fly-eater, and Queensland Canary. Inhabits the mangroves and adjacent scrubs and gardens; it has a very melodious song; perhaps the finest among the Warblers; it frequents the leaves, branches, and blossoms of the mangroves and other flowering trees, seeking small insects of various kinds.

Nest.—Similar to that of the other Warblers, but with a smaller and more slender appendage, composed of fibrous bark, fine roots, and dry grasses, firmly bound together with spiders' webs and ornamented with their cocoons; lined with feathers, thistledown, and other soft material. Built in a mangrove tree at various heights from the ground.

Eggs.—Three, pale pink, some speckled all over with reddish-brown spots, others with the spots forming a dark red zone at the larger end. Breeding-season: October to December.

5. Dusky Honey-eater *Myzomela obscura* Gould

mīz'-o-mel'-a—Gk, *myzein*, to suck; Gk, *meli*, honey: *ob-scūr'-a*—L., *obscurus*, dusky.

Distribution.—Tropical northern Australia to southern Queensland.

Notes.—Inhabits the mangroves, adjacent scrubs, and open forests, searching the twigs, leaves, and blossoms for insects and nectar. Food: insects and honey.

Nest.—A small, frail, cup-shaped structure, composed chiefly of rootlets, thin grasses, and sometimes hair, suspended from near the extremity of a long leafy branch of a tree or bush.

Eggs.—Usually two, white with a pale pinkish tinge, minutely spotted with reddish-brown, chestnut, and purplish-grey, these markings being confined chiefly to the larger end. Breeding-season: September to December.

6. Brown-backed Honey-eater *Gliciphila modesta* Gray

Gli-ciph'-il-a—Gk, *glycys*, sweet; Gk, *philos*, fond of: *mōd-est'-a*—L., *modestus*, modest.

Distribution.—Northern Queensland, from Cape York to Cairns; also occurs in the Aru Islands and New Guinea.

Notes.—Inhabits the mangroves, tea-tree swamps, and scrubs adjacent to water, where it is to be seen among the leaves, twigs, and blossoms searching for insects and honey; its call-note is sharp, shrill, and monotonous.

Nest.—A dome-shaped structure with a hooded side entrance, composed of fine strips and pieces of paper bark, lightly bound with cobwebs and silk from cocoons; lined with pieces of soft paper bark, and suspended from a small twig of a bush, up to 8 feet from the ground.

Eggs.—Two or three, white, finely spotted and speckled with dark brown and almost black markings, chiefly at the larger end. Breeding-season: August to April.

7. Rufous-banded Honey-eater *Conopophila albogularis* Gould
Cō-nō-poph'-il-a—Gk, *conops*, gnat; Gk, *philos*, fond of: *al-bo-gu-lār'-is*—L., *albus*, white; L., *gularis*, throated.

Distribution.—Northern Territory and northern Queensland; also occurs in the Aru Islands.

Notes.—Inhabits the mangroves and paper-bark tree swamps; it is an active bird, constantly flitting from branch to branch and taking irregular flights, during which it utters its pretty song. Food: chiefly insects.

Nest.—A small, cup-shaped structure, composed of fine strips of bark matted together with spiders' webs; lined with fine grass; suspended from the extremity of a thin projecting branch, usually overhanging water.

Eggs.—Two or three, white, finely spotted and speckled nearly all over with bright chestnut-red markings, particularly at the larger end. Breeding-season: October to January.

8. Varied Honey-eater *Meliphaga versicolor* Gould
Mel-iph'-ag-a—Gk, *meli*, honey; Gk, *phagein*, to eat: *ver'-si-col-or*—L., *versicolor*, different coloured.

Distribution.—Northern Queensland, chiefly on the islands off the coast; also occurs in New Guinea.

Notes.—Inhabits the mangroves; it is an extremely active bird and a splendid songster; flits among the leaves and blossoms, searching for insects and honey.

Nest.—A small, cup-shaped structure, neatly composed of dried seagrasses, weeds, and dead leaves; lined with fine rootlets. Frequently placed in the foliage of a mangrove tree.

Eggs.—Two, pale pinkish-buff, possessing an indistinct cap of clouded and very minute spots of pale reddish-brown markings. Breeding-season: July to November.

9. Mangrove Honey-eater *Meliphaga fasciogularis* Gould
fas'-ci-o-gu-lā-ris—L., *fascia*, band; L., *gularis*, throated.

Distribution.—Northern and eastern Queensland, chiefly on the islands off the coast.

Notes.—Also called Scaly-throated Honey-eater and Island Honey-eater; it frequents the mangroves and coastal tributaries. A noisy species, congregating in large numbers. Food: insects and honey.

Nest.—An open, cup-shaped structure, similar to that of the Varied Honey-eater; usually placed among the foliage of a mangrove tree.

Eggs.—Two, pinkish-buff, passing into a warm reddish-buff on the larger end where they are indistinctly and finely spotted with purplish-red markings, with a few underlying spots of pale purplish-grey. Breeding-season: August to December (to March or April).

10. Broad-billed Flycatcher *Myiagra ruficollis* Vieillot

Mÿ-î-ag'-ra—Gk, *myiagra*, flycatcher: *rû-fi-coll'-is*—L., *rufus*, red; L., *collum*, neck.

Distribution.—Tropical northern Australia; also occurs in Timor, the Aru Islands, and New Guinea.

Notes.—Inhabits the mangroves, rarely found elsewhere; usually in pairs, searching for insect-life among the leaves.

Nest.—A cup-shaped structure, composed of strips of bark, bound together with a thick coating of spiders' webs, and decorated on the outside with lichen. Usually built on a dead twig about 2 feet above high-water mark over a channel in the mangroves.

Eggs.—Two, whitish, with a zone formed of brownish and lavender spots round the larger end. Breeding-season: January and February.

11. Mangrove-robin *Quoyornis leucurus* Gould

Quoy-orn'-is—Jean Rene Quoy (1790-1869), French scientist and explorer, associated with Gaimard: *lêûc-ûr'-us*—Gk, *leucos*, white; Gk, *ura* (*oura*), tail.

Distribution.—Tropical northern Australia.

Notes.—Also called White-tailed Shrike-robin. Inhabits the mangroves only, usually in pairs; it secures its food among the leaves. Call-note, a short, low whistle, more frequently uttered in the breeding-season. Food: insects.

Nest.—A compact, open, cup-shaped structure, composed of strips of bark held together with cobwebs; lined with dry rootlets and grass, and decorated on the outside with long strips of bark. Usually placed in the fork of a mangrove tree, up to 14 feet from the water.

Eggs.—Two, light green to dark olive-green, marked with small round spots of different shades of reddish-brown, with underlying markings of lilac. Breeding-season: August and September to January and February.

12. Brown Whistler *Pachycephala simplex* Gould

Pach'-y-ceph'-al-a—Gk, *pachys*, thick; Gk, *cephale*, head; *sim'-plex*—L., *simplex*, plain.

Distribution.—Northern Territory.



SOME BIRDS OF THE MANGROVES

Notes.—Also called Brown Thickhead. Inhabits the mangroves and adjoining dense scrubs and swamps; usually in pairs. It is very shy and retiring in habits, and has a somewhat pleasing and lengthened song, but without the "whip-crack" ending which is characteristic of the song of the other Whistlers. Food: insects and seeds of various kinds.

Nest.—An open structure, composed of long pieces of coarse grass; lined with the feathery seed-tops of grass and a few feathers. Generally placed in an upright forked branch of a mangrove or other tree.

Eggs.—Two, pale buff, with spots of dark brown and underlying markings of lilac, which are chiefly confined to the larger end. Breeding-season: not recorded.

13. Yellow Silver-eye *Zosterops lutea* Gould

Zōs-tēr'-ops—Gk, *zoster*, belt; Gk, *ops*, face: *lū'-te-a*—L., *luteus*, yellow.

Distribution.—Tropical northern Australia to western Queensland, from Carnarvon to the Norman River.

Notes.—Also called Yellow White-eye. Usually in small flocks, frequenting the mangroves and nearby scrubs; it is very active whilst searching among the leaves for insects, uttering the while its low "tinkling" note. Food: insects, berries, and seeds.

Nest.—A neat, cup-shaped structure, said to be similar to that of the Grey-breasted Silver-eye; usually placed in a mangrove tree.

Eggs.—Three, pale bluish-green. Breeding-season: probably September to January.

14. White-breasted Whistler *Pachycephala lanoides* Gould—14A. Female

lan-i-ōid-ēs—Gk, *lanios*, butcher-bird; Gk, *-oides*, from *eidōs*, form = like.

Distribution.—Northern Australia, from Shark Bay to the Gulf of Carpentaria.

Notes.—Also called White-bellied Thickhead. Usually in pairs, frequenting the mangroves; similar in habits and song to the other Whistlers.

Nest.—Built of twigs and rootlets, lined with finer rootlets, and fastened in position with cobwebs. Built in a fork in the centre of a mangrove tree at about 6 feet from the ground.

Eggs.—Two, stone-coloured or buff, with a zone of umber and lavender spots at the larger end. Breeding-season: December to January.

15. Shining Flycatcher *Piezorhynchus alecto* Temminck—15A. Female

Pi-ez'-o-rhynch'-us—Gk, *piezein*, to press; Gk, *rhynchos* (*rhugchos*), beak: *alecto*—one of the furies (mythological).

Distribution.—Tropical northern Australia, from Point Torment in the west to Hervey Bay in the east.

Notes.—Inhabits the mangroves chiefly, also tea-tree swamps and river margins. Usually in pairs; it is shy, and is generally seen moving about close to the ground among the roots of the mangroves; it utters a

note closely resembling the croak of a frog, and it also has a pleasing whistling call-note. Food: insects of various kinds and small crustaceans.

Nest.—A cup-shaped structure, composed of strips of bark bound together with spiders' webs, decorated on the outside with pieces of bark and lichen; lined with fine rootlets. Usually built in trees or vines overhanging water.

Eggs.—Two or three, bluish or greenish-white, spotted with brownish and lavender markings, particularly at the larger end, often forming a zone. Breeding-season: October to January or February.

16. Yellow-billed Kingfisher *Syma torotoro* Lesson—16A. Female

Syma—Syme Island in the Ægean Sea: *torotoro*—native name.

Distribution.—Northern Queensland (Cape York); also occurs in the Aru Islands and New Guinea.

Notes.—Also called Saw-billed Kingfisher. The New Guinea form is a mangrove-dwelling species, whilst the Cape York form usually inhabits the scrub and open forest-lands. It has a mournful trilling call, ascending the scale, and difficult to locate. Food: insects (chiefly beetles), small reptiles, and crustaceans.

Nest.—In a hole in a termites' nest in a tree.

Eggs.—Three or four, pure white. Breeding-season: November and December or January.

17. Mangrove Kingfisher *Halcyon chloris* Boddaert

Hal'-cy-on—Gk, *alcyon*, a sea-bird, later the kingfisher, *hal*, the sea, *cyon*, breeding: *chlōr'-is*—Gk, *chloros*, yellow-green.

Distribution.—Northern Australia, as far south as Brisbane on the east coast and Point Cloates on the west coast.

Notes.—A migratory species, inhabiting the mangroves; its note is similar to that of the Sacred Kingfisher, but much louder; it is usually seen in pairs or small parties. Food: small fish and crustaceans.

Nest.—In a hole in a termites' nest, in a hollow limb, or in a hole in a tree.

Eggs.—Three, pure white. Breeding-season: October to December.

18. Black Butcher-bird *Cracticus quoyi* Lesson and Garnot—18A. Red Phase

Crac'-tic'-us—Gk, *cracticos*, loud-voiced: *quoyi*—Jean Renè Quoy (1790-1869), French scientist and explorer, associated with Gaimard.

Distribution.—Northern Territory and northern Queensland; also occurs in New Guinea.

Notes.—Two colour phases are known; both often occur in the same brood, the black phase being the more plentiful. Usually in pairs, inhabiting the mangroves; it is a melodious songster, with rich, flute-like notes. Food: chiefly crustaceans and insects of various kinds.

Nest.—A fairly large, open, cup-shaped structure, composed of thin sticks and twigs; neatly lined with grass and rootlets. Placed in an upright forked branch of a tree about 20 feet from the ground.

Eggs.—Usually four, greyish-green or cream, marked with roundish spots of umber and dull slate, the markings becoming more thickly crowded at the larger end. Breeding-season: October to January.

19. White-browed Crane *Poliolimnas cinereus* Vieillot

Pol-i-o-lim'-nas—Gk, *polios*, grey; Gk, *limne*, marsh: *cin-er'-e-us*—L., *cinereus*, ashen.

Distribution.—Northern Australia, from Kimberley to northern Queensland.

Notes.—Inhabits the mangroves; a fearless species, spending its time on the mud or among the branches of the mangroves, where it climbs with ease. Food: insects of various kinds, worms, slugs, and the leaves of aquatic plants.

Nest.—Placed on the ground and formed of coarse grasses; lined with finer materials.

Eggs.—Three to six in number, greenish-white to light yellowish-clay, almost obscured with fleecy markings and streaks of dull chestnut-brown or yellowish-brown. Breeding-season: January to April.

BIRDS OF THE HEATH-LANDS AND OPEN
COUNTRY

PLATE XXIV

SOME BIRDS OF THE HEATH AND UNDERGROWTH

1. Scrub-tit *Acanthornis magnus* Gould

Ac-anth-ōrn'-is—Gk, *acantha*, spine, thorn; Gk, *ornis*, bird: *mag'-nus*—L., *magnus*, great.

Distribution.—Tasmania.

Notes.—Usually singly or in pairs, keeping to the undergrowth; similar in habits to the Scrub-wrens. It is a shy bird, and moves among the tree-ferns and fallen logs with great rapidity, searching for insect-life.

Nest.—A dome-shaped structure, composed of green moss, shreds of bark, and fern down; lined with fur or feathers. Usually built in a perpendicular fork of a large tree, up to 6 feet from the ground.

Eggs.—Three, white, blotched with purple markings, particularly at the larger end. Breeding-season: August to January.

2. White-browed Scrub-wren *Sericornis frontalis* Vigors and Horsfield

Sēr-ic-orn'-is—Gk, *sericos*, silken; Gk, *ornis*, bird: *front-ā'-lis*—L, *frontatus* (*frons*), with conspicuous forehead.

Distribution.—From southern Queensland to Victoria and South Australia, and the Kent Group (Bass Strait).

Notes.—In pairs, inhabiting localities clothed with thick undergrowth, such as creek-banks and gullies. It is very active and fearless. Its food is procured among leaves and debris; call-note, a double whistle repeated many times; it utters a harsh scolding note when one approaches its nest. Food: chiefly insects.

Nest.—A dome-shaped structure with a side entrance, loosely composed of bark, leaves, and fine grass; lined with feathers or other soft materials. Usually placed on the ground beneath thick undergrowth or under a heap of debris.

Eggs.—Three, whitish-stone or grey, with a dark zone of purplish-brown at the larger end. Breeding-season: July to December.

3. Buff-breasted Scrub-wren *Sericornis laevigaster* Gould

laev-i-gas-ter—L., *levis*, light, meaning pale; Gk, *gaster*, belly.

Distribution.—From Herberton (northern Queensland) to north-eastern New South Wales.

Notes.—In pairs or small parties, frequenting the brushes and humid scrubs. Similar in habits to the White-browed Scrub-wren.

Nest.—A dome-shaped structure with a side entrance, composed chiefly of dried ferns; warmly lined with feathers. Usually situated near the ground in thick undergrowth.

Eggs.—Two, pale brownish, with dark purplish-brown markings forming a zone at the larger end. Breeding-season: probably November to December.

4. Little Scrub-wren *Sericornis minimus* Gould

min'-i-mus—L., *minimus*, very small.

Distribution.—Cape York Peninsula (northern Queensland).

Notes.—Is fairly common in the scrubs, where it searches for food among the fallen leaves and debris or among masses of fallen vines and trees. Food: insects.

Nest.—A dome-shaped structure with a side entrance, composed of leaves and rootlets; lined with fine tendrils and a few feathers. Placed a few feet from the ground in a scrubby tree.

Eggs.—Usually three, faint reddish-brown, with a zone of fleecy markings of light brown on the larger end. Breeding-season: probably October to December.

5. Spotted Scrub-wren *Sericornis maculatus* Gould

mac-u-lā'-tus—L., *maculatus*, spotted.

Distribution.—Western Australia, South Australia, Kangaroo Island, and the interior of New South Wales.

Notes.—In pairs, inhabiting the undergrowth, scrubby places, and the beds of dry watercourses. It is shy and retiring in habits, seeking its food on the ground. Food: insects and worms.

Nest.—A dome-shaped structure with a side entrance, composed of bark, leaves, and grass; lined with feathers. Usually placed close to the ground in a scrubby bush.

Eggs.—Three, whitish, with a zone of purplish-brown and lavender spots at the larger end. Breeding-season: September to December or January.

6. Large-billed Scrub-wren *Sericornis magnirostris* Gould

mag-ni-ros'-tris—L., *magnus*, great; L., *rostrum*, bill.

Distribution.—From northern Queensland to Gippsland (Victoria).

Notes.—Usually in pairs or small parties, frequenting the coastal brushes and contiguous areas. It procures its food among the branches and leaves of the tall trees as well as on the ground or in the undergrowth. Food: chiefly insects.

Nest.—A large, oval-shaped structure with a side entrance, composed of leaves, moss, and grass; lined with feathers. Usually placed in a



SOME BIRDS OF THE HEATH AND UNDERGROWTH

drooping branch of a leafy tree, a tree-fern, or in a vine. A deserted nest of the Yellow-throated Scrub-wren is often relined and used by this species.

Eggs.—Three, whitish or grey, finely spotted with brown markings, particularly on the larger end, where a zone is formed. Breeding-season: August to January.

7. Brown Scrub-wren *Sericornis humilis* Gould

hu'-mil-is—L., *humilis*, humble.

Distribution.—Tasmania and the islands of Bass Strait.

Notes.—In pairs or small parties, frequenting alike the thick undergrowth of the deep gullies and open scrub-lands. Similar in habits to the White-browed Scrub-wren.

Nest.—A dome-shaped structure with a side entrance, composed of fine bark, moss, leaves, and grass; lined with feathers and other soft materials. Usually built in a bushy tree or tussock close to the ground.

Eggs.—Usually three, purplish-buff or reddish, spotted with umber markings, particularly at the larger end, where a zone is formed. Breeding-season: August to December.

8. Brown Honey-eater *Gliciphila indistincta* Vigors and Horsfield

Gli-ciph'-il-a—Gk, *glycys*, sweet; Gk, *philos*, fond of: *in-dis-tinc'-ta*—L., *indistinctus*, not clear.

Distribution.—Australia (except Victoria and South Australia); also occurs in the Aru Islands and New Guinea.

Notes.—Also called Least Honey-eater. In flocks, frequenting heath and waste-lands, dwarf scrub, and mangroves. Procures its food among the blossoms and foliage. One of the sweetest songsters of the Honey-eaters. Food: insects and nectar.

Nest.—A small, cup-shaped structure, composed chiefly of soft bark; lined with plant down. Usually suspended in a small forked branch of a shrub, often overhanging water.

Eggs.—Usually two, white, with a few minute specks of pale chestnut scattered about the larger end. Breeding-season: June to January.

9. Pied Honey-eater *Certhionyx variegatus* Lesson—9A. Female

Certh'-i-on-yx—Gk, *certhios*, bird, i.e., creeper; Gk, *onyx*, (*onychos*), claw: *var-i-e-gā'-tus*—L., *variegatus*, pied.

Distribution.—Interior of Australia, from New South Wales to Western and north-western Australia.

Notes.—In pairs or small parties, frequenting chiefly heath and scrub-lands and acacia scrubs, feeding among the flowering shrubs and trees on insects, nectar, and pollen. It is shy and very quick on the wing, and has the habit of flying high in the air, uttering its mournful

whistling song; it will then drop suddenly, always turning over backwards in its descent to cover.

Nest.—A shallow, cup-shaped structure, composed of fine grasses; lined with finer grasses. Usually placed in a small bush or tree, up to 15 feet or more from the ground.

Eggs.—Two or three, pale yellowish-white, well marked all over with spots and specks of dark umber and dull slate-grey. Breeding-season: October to February (June and July).

10. Firetail Finch *Zonaeginthus bellus* Latham

Zōn-ae-ginth'-us—L., *zona*, band; Gk, *ainitha*, a kind of bird: *bell'-us*—L., *bellus*, beautiful.

Distribution.—New South Wales, Victoria, South Australia, Tasmania, and Kangaroo Island.

Notes.—Also called Beautiful Firetail Finch. In pairs or small parties, frequenting heath and low-lying scrub-lands; rarely far from water. It is a shy and silent bird, keeping to the undergrowth and tall grasses. Call-note, a low, plaintive whistle; this species is sometimes seen in the company of the Red-browed Finch. Food: seeds, insects, and small snails.

Nest.—A long, bottle-shaped structure, placed on its side, composed of thin dried and green grasses and a few leaves; lined with fine grass and a few feathers or other soft materials. Usually placed in the thick foliage of a bush or tree.

Eggs.—From five to eight, usually five, pure white. Breeding-season: September to January.

11. Red-eared Firetail Finch *Zonaeginthus oculatus* Quoy and Gaimard

oc-u-lā'-tus—L., *ocuiatus*, marked with eyes.

Distribution.—South-western Australia, from Cape Naturaliste to Bremer Bay.

Notes.—Also called Red-eared Finch and Zebra Finch. Usually in pairs, frequenting swampy heath-lands; it is secretive in habits, always keeping to the undergrowth. Its call-note is a soft "Win-win-win-win." Food: seeds, insects, and small snails.

Nest.—A well-made, bottle-shaped structure, placed on its side, composed of green grasses, those with slender rounded stems being chosen; the nest is without lining. Usually placed at the extremity of a horizontal branch of a low swamp banksia, or other bush, at heights up to 15 feet or more from the ground.

Eggs.—Four to six, pure white. Breeding-season: August to December, sometimes later.

12. White-bearded Honey-eater *Meliornis novæ-hollandiæ* Latham

Mel-i-orn'-is—Gk, *meli*, honey; Gk, *ornis*, bird: *novæ-hollandiæ*—of New Holland.

Distribution.—Southern Queensland, New South Wales, Victoria, South and south-western Australia, and Tasmania.

Notes.—Also called Jew-bird, New Holland Honey-eater, and Yellow-winged Honey-eater. Usually in flocks, inhabiting chiefly heath-lands of the coastal districts; it also visits the open timbered country when the eucalypts are in bloom, and is common in gardens. Its call-note is sharp and shrill; when alarmed it utters harsh chattering notes. Food: insects, pollen, and nectar.

Nest.—An open, cup-shaped structure, composed of strips of bark, grasses, and twigs; lined with soft plant down, usually the brown velvety down removed from the dead cones of banksias. Generally placed in a banksia or other thick bush.

Eggs.—Two or three, pinkish-buff, becoming darker at the larger end, spotted with dark reddish-chestnut and a few scattered markings of slate-grey, chiefly about the larger end. Breeding-season: June to January (throughout the year if the weather is propitious).

13. White-cheeked Honey-eater *Meliornis niger* Bechstein

nī-ger—L., *niger*, black.

Distribution.—Eastern Australia, from the Herberton Range (northern Queensland) to Victoria and South Australia to south-western Australia as far north as Perth.

Notes.—Also called Moustached Honey-eater. Usually in flocks, inhabiting heath-lands and open timbered country. A very local species and rather wary, otherwise it is similar in habits to the White-bearded Honey-eater. Its loud call-note resembles the word "Egypt."

Nest.—A cup-shaped structure, composed chiefly of strips of bark and dried grasses; lined with soft plant down, often the brown velvety tufts removed from the cones of banksias. Usually placed in a banksia or some thick foliated shrub, close to the ground.

Eggs.—Usually two, pale buff, with a zone at the larger end, formed of reddish-brown and purplish-grey spots. Breeding-season: July to December.

14. Crescent Honey-eater *Phylidonyris pyrrhoptera* Latham—14A. Female

Phyl-i-don'-y-ris—Gk, *philos*, loving; Gk, *hedone*, pleasure: *pyr-rhop'-ter-a*—Gk, *pyrrhos*, fire-coloured; Gk, *pteron*, wing.

Distribution.—South-eastern Queensland to Victoria and South Australia (St Vincent Gulf), Kangaroo Island, and Tasmania.

Notes.—Also called Tasmanian Honey-eater, Horseshoe Honey-eater, Egypt Honey-eater, and Chick-chock. Usually in flocks, inhabiting heath and dwarf scrub-lands, preferably where these areas are interspersed with tall trees. In New South Wales it is common in the dwarf scrubs and gullies of the mountain ranges. One of its call-notes is a metallic "Egypt-Egypt," with the accent on the last syllable. Food: insects, pollen, and nectar.

Nest.—A deep, cup-shaped structure, composed of strips of bark and twigs; lined with grass and a little soft material. Usually placed in a thick scrub or similar situation close to the ground.

Eggs.—Three usually, pale flesh-coloured, becoming darker at the larger end, spotted and speckled with reddish-chestnut and a few scattered markings of dull purplish-grey, particularly at the larger end. Breeding-season: July to December or January.

15. Tawny-crowned Honey-eater *Gliciphila melanops* Latham
mel'-an-ops—Gk, *melas* (*melanos*), black; Gk, *ops*, face.

Distribution.—New South Wales, Victoria, South and south-western Australia, Kangaroo Island, and Tasmania.

Notes.—Also called Fulvous-fronted Honey-eater. Usually in pairs or small parties, inhabiting heath and dwarf scrub-lands. Its song, which is somewhat mournful, commences with a single note slowly drawn out, followed by a quick double note, repeated six or eight times; it is usually uttered while the bird is perched on the topmost branch of a shrub. Food: insects, nectar, and pollen.

Nest.—A deep, cup-shaped structure, composed of strips of bark and grass, well matted together with spiders' egg-bags and cobwebs; lined with plant down. Generally placed near the ground in a low bush or tussock.

Eggs.—Two or three, white, sparsely spotted and speckled, chiefly at the larger end, with dull chestnut-brown markings. Breeding-season: June to February or later.

16. White-fronted Honey-eater *Gliciphila albifrons* Gould
al'-bi-frons—L., *albus*, white; L., *frons*, forehead.

Distribution.—Extra-tropical Australia (accidental to southern Australia).

Notes.—Usually in pairs or small parties, inhabiting heath and dwarf scrub-lands of the interior. It is an active bird, darting about the foliage and blossoms in search of insects and nectar; at all times it is shy and wary. Its flight is erratic, and similar to that of the Tawny-crowned Honey-eater. A local migrant in large flocks.

Nest.—A cup-shaped structure, composed of bark and grasses; usually lined with the brown velvety material removed from the cones of the banksias, and sometimes with hair or fur. Mostly placed in a low bush, within 5 feet of the ground.

Eggs.—Usually two, pale pinkish-white, spotted and blotched, particularly at the larger end, with reddish-brown and dull purple markings. Breeding-season: generally July or August to January.

17. White-eared Honey-eater *Meliphaga leucotis* Latham

Mel-iph'-ag-a—Gk, *meli*, honey; Gk, *phagein*, to eat: *lēūc-ōt'-is*—Gk, *leucos*, white; Gk, *otos*, genitive of *ous*, ear.

Distribution.—Southern Queensland to Victoria, South Australia, Kangaroo Island, and south-western Australia.

Notes.—Usually in pairs or small parties, frequenting alike heath and

scrub-lands, and open forest country. In New South Wales it chiefly inhabits heath and adjoining scrub; it has a loud, clear call-note, and a double short note, resembling "Chop-chop." During the breeding-season it becomes very tame; there are many instances of the female alighting on the heads and clothes of observers, seeking hair and wool for nesting-material. Food: insects and nectar.

Nest.—An open, cup-shaped structure, composed of thin strips of bark and grasses, well bound together with cobwebs; lined with fur, hair, or other warm materials. Usually it is placed in a low bush or small tree, at heights up to 10 feet from the ground.

Eggs.—Two or three, pale flesh-coloured or white, sparsely spotted and blotched with pinkish-red and reddish-brown markings, becoming more numerous at the larger end. Breeding-season: July to December.

18. Yellow-throated Honey-eater *Meliphaga flavicollis* Vieillot
flāv'-i-coll'-is—L., *flavus*, yellow; L., *collum*, neck.

Distribution.—Tasmania and the islands of Bass Strait (King Island and Flinders Group).

Notes.—Very similar in habits to the White-eared Honey-eater. Its song is a loud, often repeated, whistle-like call, usually uttered while the bird is perched on the topmost twig of a low tree. Food: chiefly insects, procured among the leaves and flowers or in the crevices of bark on tree-trunks; also nectar.

Nest.—A deep, cup-shaped structure, composed of strips of bark and grasses; lined with hair, fur, or other soft materials. Usually placed in a small bush or thickly foliated tree.

Eggs.—Two or three, pale pinkish-white, thickly spotted or blotched, chiefly at the larger end, with reddish-brown and purplish-grey markings. Breeding-season: July to November, sometimes as late as January.

19. Little Wattle-bird *Anthochaera chrysoptera* Latham

An-tho-chær'-a—Gk, *anthos*, flower; Gk, *chairein*, to rejoice: *chrÿs-op'-ter-a*—Gk, *chrysos*, golden; Gk, *pteron*, wing.

Distribution.—Southern Queensland to Victoria, South and southwestern Australia, Kangaroo Island, and Tasmania.

Notes.—Also called Brush Wattle-bird, Mock Gill-bird, Mocker, and Cookay-cock. In pairs or small parties, frequenting chiefly heath-lands of the coastal districts. It is a very active and noisy bird, especially during the breeding-season, constantly uttering a variety of harsh call-notes, somewhat like "Get-up, Get-up, Wak, Wak, Keik Kewick, Keik Kewick." Food: insects chiefly, and nectar.

Nest.—A cup-shaped structure, composed of small twigs, loosely put together; neatly lined with soft grasses and very fine soft bark. Usually placed in a fork of a low tree or bush.

Eggs.—One to three, pinkish-buff, spotted, chiefly at the larger end, with reddish-brown and purplish-grey markings. Breeding-season: August to December.

PLATE XXV

BIRDS OF THE HEATH-LANDS

1. Redthroat *Pyrrholæmus brunneus* Gould

Pyr-rho-læm'-us—Gk, *pyrrhos*, fire-coloured; Gk, *laimos*, throat: *brun'-ne-us*—L., *brunneus*, brown.

Distribution.—Central Australia, including the inland areas of New South Wales, Victoria, South Australia, and Western Australia.

Notes.—Usually singly or in pairs, inhabiting low stunted scrub-lands. Spends much of its time on the ground, over which it moves rapidly; it is extremely shy and possesses a very sweet and melodious song, frequently uttered while perched on the topmost twig of a low bush; it is also a splendid mimic. Food: insects of various kinds, procured on the ground or among the herbage and undergrowth.

Nest.—A round structure with an entrance at the side, composed of bark-fibre and grasses; sometimes lined with feathers. Usually built in a low bush close to the ground.

Eggs.—Three or four, of various shades of purplish-brown with a clouded zone or cap of a darker shade of the ground colour at the larger end. Breeding-season: August to November (March, April).

2. Spinifex-bird *Eremiornis carteri* North

E-rēm'-i-ōrn'-is—Gk, *eremia*, desert; Gk, *ornis*, bird: *carteri*—Tom Carter, British ornithologist, who resided in Western Australia for many years.

Distribution.—Mid-western and north-western Australia and Monte Bello Island and Barrow Island.

Notes.—Also called Desert-bird. Usually in pairs, inhabiting spinifex (*Triodia*) and low scrub; it is shy and retiring in habits, spending most of its time on the ground. The song of the male is likened to the French words, *Je suis, à vous*, and the notes of the female to "Thrip-thrip." Food: insects of various kinds, chiefly small grasshoppers and beetles.

Nest.—Cup-shaped, substantially built of finely shredded grass or herbage, lined with fine roots, and placed in a bunch of spinifex.

Eggs.—Two, pinkish-white, closely covered all over, particularly at the larger end, with minute markings of pale lilac and purplish-brown and from light to dark reddish-brown. Breeding-season: August (Barrow Island).

3. Emu Wren *Stipiturus malachurus* Shaw—3A. Female

Stip-it-ūr'-us—L., *stipes*, *stipitis*, stem; Gk, *ura* (*oura*), tail: *mal-a-chūr'-us*—Gk, *malacos*, soft; Gk, *ura* (*oura*), tail.

Distribution.—South-eastern Queensland, New South Wales, Victoria, South Australia, south-western Australia, and Tasmania.

Notes.—According to seasons, in pairs or small parties; inhabits swampy heath-lands. It is very shy, keeping to the rank undergrowth, through which it moves in a mouse-like manner. It has a low, squeaking call-note, and, when flushed, utters a slight twitter. Food: insects of various kinds, procured on the ground or among the rank undergrowth.

Nest.—A round structure with an entrance at the side, composed of grass loosely put together, lined with finer grasses, and built in a tuft of grass or low bush.

Eggs.—Three or four, white, freckled or spotted all over with red markings, especially at the larger end. Breeding-season: August to December.

4. Mallee Emu Wren *Stipiturus mallee* Campbell

mallee—name of district where the mallee (species of eucalyptus) grows.

Distribution.—The mallee districts of north-western Victoria and South Australia.

Notes.—In pairs or small parties, inhabiting the undergrowth of the mallee scrubs and surrounding low scrub. Similar in habits to the Emu Wren. The female does not possess stripes above the eyes, or on the cheeks or throat (see female of the Emu Wren).

Nest.—Very similar to that of the Emu Wren.

Eggs.—Very similar to those of the Emu Wren.

5. Rufous-crowned Emu Wren *Stipiturus ruficeps* Campbell

rū'-fi-ceps—L., *rufus*, red; *ceps*, from L. *caput*, *capitis*, head.

Distribution.—Central Australia to mid-western Australian coast.

Notes.—In pairs or small parties, inhabiting spinifex country or stunted scrub-lands. Similar in habits to the other Emu Wrens. The female differs from the male in the same manner as the females of the other species.

Nest.—An oval structure with an entrance at the side, composed of fine bark, grass, and spiders' webs; lined with feathers and plant down; placed in a tussock of spinifex or low bush.

Eggs.—Two, white, slightly tinged with pinkish-buff, well marked all over, particularly at the larger end, with spots and specks of reddish-brown and others of light umber. Breeding-season: October.

6. Heath-wren *Hylacola pyrrhopygia* Vigors and Horsfield

Hŷ-lac'-o-la—Gk, *hyle*, wood; L., *colere*, to inhabit: *pyr-rho-pyg'-i-a* (*g* = *j*)—Gk, *pyrrhos*, fire-coloured; Gk, *pyge*, rump, tail.

Distribution.—New South Wales, Victoria, and South Australia (Mount Lofty Range).

Notes.—Also called Chestnut-rumped (or tailed) Ground-wren and Scrub-warbler. In pairs or small parties, according to the seasons, frequenting heath-lands. It is shy and retiring, moving along the ground or among the undergrowth with great rapidity. Has a melodious song and is a wonderful mimic. Food: insects of various kinds, procured on the ground or in the vegetation.

Nest.—A dome-shaped structure with a side entrance, composed of grasses and bark; lined with feathers; placed on or near the ground in a low bush.

Eggs.—Two or three, pinkish-white to buff, spotted with shades of purplish-brown, more so at the larger end where a zone is formed. Breeding-season: July to December.

7. Shy Heath-wren *Hylacola cauta* Gould

caut -a—L., *cautus*, shy.

Distribution.—New South Wales, Victoria, South Australia to south-western Australia and Kangaroo Island.

Notes.—Also called Shy Ground-wren and Shy Scrub-warbler. Similar in habits to the Heath-wren.

Nest.—A dome-shaped structure with a side entrance, composed of bark and grasses; lined with finer grasses, sometimes with feathers or other soft material; placed near the ground.

Eggs.—Two or three, faint purplish-brown, minutely freckled with purplish-brown markings, slightly deeper at the larger end, often forming a zone. Breeding-season: September to November or December.

8. Striated Field-wren *Calamanthus fuliginosus* Vigors and Horsfield

Cal-am-anth'-us—Gk, *calamos*, reed; Gk, *anthos*, bird: *fū-lī'-gin-ō'-sus*—L., *fuliginosus*, sooty.

Distribution.—New South Wales, Victoria, south-eastern South Australia, and Tasmania.

Notes.—Also called Striated Reed-lark and Mock Quail. Usually in pairs or small parties, frequenting heath-lands and low stunted scrub-lands. A shy bird, spending most of its time on the ground, over which it hops or moves among the undergrowth with great celerity. Has a very pleasing song, usually uttered while perched on the topmost twig of a low bush. Food: insects of various kinds, procured on the ground or among the vegetation. All the species of this genus carry their tails erect.

Nest.—A dome-shaped structure with an entrance at the side, composed of moss, dried grasses, and leaves; lined with feathers; placed on or near the ground.

Eggs.—Three, of various shades of brown, clouded with darker shades of the ground colour, often forming a zone at the larger end. Breeding-season: July or August to December.



BIRDS OF THE HEATH-LANDS

9. Rock Field-wren *Calamanthus montanellus* Milligan

mon-tan-ell'-us—L., *montanellus*, of the mountains.

Distribution.—Mid-western Australia (Dirk Hartog Island) to south-western Australia (Stirling Ranges).

Notes.—Usually in pairs or small parties, inhabiting low scrub-lands as well as the rocky or stony foothills of the Stirling Ranges. Similar in habits to the Striated Field-wren.

Nest.—Similar to that of the Striated Field-wren.

Eggs.—Similar to those of the Striated Field-wren.

10. Rufous Field-wren *Calamanthus campestris* Gould

cam-pes'-tris—L., *campestris*, of the fields.

Distribution.—Interior of New South Wales, from Broken Hill to Eyre's Peninsula (South Australia).

Notes.—Usually in pairs or small parties, inhabiting open plains covered with salt-bush, blue-bush, and low scrub-lands. It is shy and very cautious, running mouse-like over the ground among the herbage. Call-note, a sweet and melodious song. Food: insects of various kinds, procured on the ground or among the vegetation.

Nest.—Globular in form with an entrance at the side, composed of dried grasses; lined with feathers. Placed beneath a low bush or on the bare ground.

Eggs.—Three or four, uniform pale chocolate, darker on the larger end, sometimes having an indistinct zone. Breeding-season: July, or after rains in summer or winter.

11. Rusty Field-wren *Calamanthus isabellinus* North

is-a-bell-i'-nus—L., *isabellinus*, isabelline (i.e. drab) in colour.

Distribution.—Interior of South Australia, central Australia, to Western Australia.

Notes.—Inhabits heath and low scrub-lands, also dry sandy waste-lands. Similar in habits to the other Field-wrens.

Nest.—Similar in construction and shape to those of other species of the genus; often placed on the bare ground as well as under low bushes and in tufts of grass.

Eggs.—Similar to, but slightly paler generally than the Rufous Field-wren. Breeding-season: after rains, both in summer and winter.

12. Western Grass-wren *Amytornis textilis* Dumont

A-my-torn'-is—Gk, *amytis*, daughter of Astyages; Gk, *ornis*, a bird: *tex'-til-is*—L., *textilis*, woven.

Distribution.—Central Australia to Western Australia.

Notes.—Usually in pairs or small parties, frequenting salt-bush, spinifex, and low scrub-lands; is almost always on the ground; carries its tail very erect, and runs and hops over the surface of the ground and

through the undergrowth with great speed. It has a low plaintive song uttered while at rest, also a faint high-pitched call-note. Food: insects and seeds, procured on the ground and among the vegetation. The female is distinguished from the male by the rufous patches at the sides of the breast.

Nest.—An open, cup-shaped structure, composed of bark and long portions of a soft white flowering plant; lined with short, soft pieces of flat grass and plant-stems, also a quantity of soft white vegetable matter. Placed in the centre of a low bush close to the ground.

Eggs.—Two or three, white or reddish-white, sprinkled over with dots and small irregular spots, with a few blotches of rich red or pinkish-red and a few underlying markings of lilac-grey, becoming confluent and forming an irregular zone at the larger end. Breeding-season: August to October.

13. Dusky Grass-wren *Amytornis purnelli* Mathews

purnelli—H. A. Purnell, ornithologist, Geelong, Victoria.

Distribution.—Central Australia (Macdonnell, Musgrave, and Everard Ranges).

Notes.—Inhabits the porcupine grass growing on the foothills of the ranges; it is extremely shy and possesses a sweet, twittering song. Food: insects and seeds. The female has rufous patches on the sides of the breast.

Nest.—Not described.

Eggs.—Not described.

14. Thick-billed Grass-wren *Amytornis modestus* North

mod-est'-us—L., *modestus*, modest (in colour).

Distribution.—Interior of New South Wales, western Victoria, South Australia, and central Australia.

Notes.—In pairs or small parties, inhabiting spinifex, blue-bush, and dry sandy watercourses. Similar in habits to other Grass-wrens.

Nest.—Similar to that of the Western Grass-wren.

Eggs.—Two, dull creamy-white, well marked all over, more particularly at the larger end, with spots and blotches of brown, as well as dull to rich reddish and rusty-brown markings. Breeding-season: after rain, early in the year.

15. Striped Grass-wren *Amytornis striatus* Gould

stri-ā'-tus—L., *striatus*, striped.

Distribution.—Interior of New South Wales, Victoria, and South Australia.

Notes.—More often called Striated Grass-wren; usually in pairs or small parties, frequenting low scrub and sandy areas. Similar in habits to other Grass-wrens. The female has rufous patches on the sides of the breast.

Nest.—Partly domed, composed of bark-fibre and the dried blades or spines of porcupine grass, built on a foundation of pieces of bark. Placed close to the ground, in or under the shelter of a spinifex tussock.

Eggs.—Two, white, well marked with spots of reddish-brown and scattered markings of pale lilac, particularly about the larger end. Breeding season: after rain, early in the year.

16. Rufous Grass-wren *Amytornis whitei* Mathews

whitei.—Captain S. A. White, ornithologist, Adelaide, South Australia.

Distribution.—Mid-western Australia, north-western Australia, and the interior of Northern Territory.

Notes.—Inhabits spinifex country; the male has a pleasing song, long sustained, also a clear, liquid, musical call-note, "Tū-tū-tū." The female has rufous patches on sides of the breast.

Nest.—Cup-shaped, composed of dried spinifex leaves; lined with kangaroo fur, the walls of the nest being thin and much interwoven with the growing spinifex in which it is placed.

Eggs.—Two, white, marked all over, but particularly at the larger end, with small irregular-shaped brownish-red dots and splashes. Breeding-season: after rain.

17. Eyrean Grass-wren *Amytornis goyderi* Gould

goyderi.—G. W. Goyder (1826-1898), explorer and surveyor-general, South Australia.

Distribution.—South Australia (Lake Eyre).

Notes.—Only one pair known; nothing is recorded of its life history.

Nest.—Unknown.

Eggs.—Unknown.

18. White-throated Grass-wren *Amytornis woodwardi* Hartert

woodwardi.—B. H. Woodward, a former director of Perth Museum, Western Australia.

Distribution.—Northern Territory (South Alligator River).

Notes.—The only notes published are: "Runs very fast and hides under rocks." The female differs in having the abdomen chestnut, not cinnamon-rufous as in the male.

Nest.—Not described.

Eggs.—Not described.

19. Dorothy Grass-wren *Amytornis dorotheæ* Mathews

dorotheæ.—Dorothy, daughter of H. L. White, Belltrees, Scone, New South Wales.

Distribution.—Eastern Northern Territory (McArthur River, Gulf of Carpentaria).

Notes.—Numerous in porcupine grass and rocks in the ranges and high sandstone country; is very shy, hiding among the rocks.

Nest.—A bulky, dome-shaped structure (in shape much like the nest of a Finch), composed of the dry seed stems of spinifex and dry stringybark leaves; lined with soft dead leaves of spinifex; the whole structure well bedded into the top of a bunch of spinifex.

Eggs.—Three, white, with faint shades of pinkish markings scattered all over the surface, but more numerous at the larger end. Breeding-season: January (McArthur River, Northern Territory).

20. Black Grass-wren *Amytornis housei* Milligan

housei—Dr F. M. House, Western Australia.

Distribution.—North-western Australia (north-western Kimberley).

Notes.—Only recorded from exceedingly rough country, strewn with piled-up masses of sandstone, which in colour varies from red to black. It runs over the boulders with its head and tail lowered. Food: insects. The female differs from the male in having the breast and under-parts chestnut.

Nest.—Undescribed.

Eggs.—Undescribed.

21. Eastern Bristle-bird *Dasyornis brachypterus* Latham

Das-y-ōrn'-is—Gk, *dasy*, hairy; Gk, *ornis*, bird: *brach-ypt'-er-us*—Gk, *brachys*, short; Gk, *pteron*, wing.

Distribution.—Eastern New South Wales and eastern Victoria.

Notes.—Usually in pairs, frequenting swampy heath-lands and rank undergrowth. It is shy, and seldom exposes itself, spending much of its time on the ground among the thick vegetation; it is very active in all its movements, and carries its tail erect. Food: insects of various kinds, and seeds.

Nest.—A dome-shaped structure with a side entrance, very loosely constructed and composed of dry bark, leaves, long grasses, and stalks of plants; warmly lined with soft materials. It is usually placed near the ground in a mass of grass, ferns, or a low bush.

Eggs.—Two, dull white or whitish-brown, with minute freckles and dots of slaty-brown, wood-brown, and purplish-brown, the markings being prominent at the larger end, sometimes forming a zone. Breeding-season: September to December.

22. Western Bristle-bird *Dasyornis longirostris* Gould

lon-gi-ros'-tris—L., *longus*, long; L., *rostrum*, bill.

Distribution.—South-western Australia.

Notes.—Also known as the Long-billed Bristle-bird; is very rare, there being no recent records. Searches made during the past few years have proved fruitless. It was once found frequenting the reed-beds and scrubby

swamp-lands near the coast at King George's Sound; it was remarkably shy, spending most of its time on the ground. Its actions were extremely quick, and its call-notes loud, clear, and varied. It carried its tail erect and rarely took flight. Food: insects and seeds.

Nest.—Oval in shape, with a side entrance, composed entirely of dried, hollow grass-stalks, with a small portion of finer grasses placed inside as lining.

Eggs.—Two, dull white, minutely freckled and spotted with wood-brown and purplish-brown markings, especially at the larger end, forming a zone. Breeding-season: October to January.

23. Rufous Bristle-bird *Dasyornis broadbenti* McCoy

broadbenti—Kendall Broadbent (1837-1911), field naturalist and ornithologist, Queensland Museum.

Distribution.—Western Victoria, South Australia, and south-western Australia.

Notes.—Also called Cartwheel-bird, its call-note resembling the noise produced by an ungreased axle. Inhabits low scrub-lands matted with rank grass; it is shy and cautious, carries its tail erect, rarely flies, and spends most of its time on the ground. Food: insects and seeds.

Nest.—Oval in shape, with a side entrance, composed of rootlets and dried grasses, loosely put together; lined with finer materials.

Eggs.—Two, dull pinkish-white, well marked all over with specks and dots of purplish-brown, especially at the larger end, forming a zone. Breeding-season: September to December.

PLATE XXVI

FAIRY WRENS OF THE HEATH AND SHRUBS

1. Blue Wren *Malurus cyaneus* Latham—1A. Female

Mal-ūr'-us—Gk, *malacos*, soft; Gk, *oura*, tail: *cŷ-an'-e-us*—Gk, *cyanos*, blue.

Distribution.—From southern Queensland to Victoria and South Australia, Kangaroo Island and Tasmania.

Notes.—Also called Superb Warbler, Blue Warbler, Blue Bonnet, Blue Cap, Blue Tit, Mormon Wren, and Cocktail. Usually in pairs or family parties, according to the season of the year. Its favourite haunts are thickets on the fringes of scrubs and the banks of watercourses; it is also plentiful in orchards and gardens. It has a pretty, tremulous song, somewhat like a musical alarm clock. Food: insects and their larvæ. The young male resembles the female; the first change in plumage is the appearance of a dark blue tail and dark brown bill. Later other changes follow quickly; black feathers appear on the nape and chest, and blue feathers on the crown, cheeks, and back. After each breeding-season the male moults into the brown phase again, until he is about three years old, when he retains his adult plumage.

Nest.—A dome-shaped structure with an entrance at the side slightly protected by a hood, composed of grasses, bark-fibre, rootlets, cobwebs, and cocoons; lined with feathers, fur, hair, wool, or other soft materials. Usually built near the ground in shrubs, more especially those with grass growing through them.

Eggs.—Three or four, fleshy or reddish-white, minutely dotted, spotted, or blotched with pale red, or different shades of reddish-brown, the markings being more numerous on the larger end. Breeding-season: July to February.

2. Black-backed Wren *Malurus melanotus* Gould—2A. Female

mel'-an-o-tus—Gk, *melas* (*melanos*), black; Gk, *noton*, back.

Distribution.—Central-western Queensland, western New South Wales, and north-western Victoria to the border of Western Australia.

Notes.—Usually in pairs or family parties, inhabiting low bushes growing on the plains, in mallee, mulga, and brigalow scrubs, and in the thickets on the slopes of hills, or in sheltered gullies. Very similar in habits to the Blue Wren. Food: insects and their larvæ.

Nest.—A dome-shaped structure with a rounded entrance near the top, composed of grasses, bark-fibre and wool; lined with feathers, fine grasses, or wool. Usually placed near the ground in a low bush, favourite nesting-sites being salt-bushes and blue-bushes.

Eggs.—Three or four, white to rich pinkish or faint reddish-white, finely freckled, dotted, and blotched with shades varying from rich pinkish-red to rich red, the markings being more numerous at the larger end, where sometimes a zone is formed. Breeding-season: September to November or December.

3. Turquoise Wren *Malurus callainus* Gould

cal-lā-ī-nus—Gk, *callainos*, like the *callais* (turquoise).

Distribution.—South Australia (Spencer Gulf) to central Australia.

Notes.—Usually in pairs or family parties, freely dispersed through low scrub and salt-bush, more especially along creeks, and gorges in the ranges. Similar in habits to the Blue Wren. Food: insects and their larvæ. The female is very similar to the female Black-backed Wren.

Nest.—A dome-shaped structure, composed throughout of soft dead grey grasses, intermingled with silky-white and brown plant down, the latter material also being used as a lining. Usually placed in a salt-bush, tangled cane-grass, or in a dead bush lying on the ground.

Eggs.—Three or four, white, finely freckled, spotted, or blotched with different shades varying from a bright red to dull reddish-brown. Breeding-season: usually commences in November and lasts until the end of April.

4. Splendid Wren *Malurus splendens* Quoy and Gaimard

splen'-dens—L., *splendens*, shining.

Distribution.—South-western Australia, from the Stirling Ranges to Geraldton.

Notes.—Also called Banded Wren. Usually in pairs or family parties, frequenting the thickets and low scrub of the coastal districts. Very similar in habits to the Blue Wren. Food: insects and their larvæ. The female is similar in plumage to the female Black-backed Wren, but differs in having bluish outer webs to the bases of the flight feathers.

Nest.—A dome-shaped structure with a rounded entrance near the top, composed of dried grasses; lined with finer grasses, wool, or feathers. Usually placed in a low bush near the ground.

Eggs.—Three or four, white to pinkish-white, freckled or spotted with purplish-brown, the markings being more numerous on the larger end. Breeding-season: August to December.

5. Black-and-White Wren *Malurus leucopterus* Dumont—5A. Female

lēūc-op'-ter-us—Gk, *leucos*, white; Gk, *pteron*, wing.

Distribution.—Mid-western Australia (Dirk Hartog Island and Barrow Island).

Notes.—In pairs or family parties, inhabiting dwarf scrub-lands and spinifex. The male is extremely shy and keeps to the cover of bushes or spinifex. Similar in habits to the other species of Wrens. Food: insects and their larvæ.

Nest.—A dome-shaped structure with a side entrance near the top, composed of very fine dried grasses matted together with spiders' webs, cocoons, and wool; lined with fine grasses, cocoons, and wool. Usually placed in a low bush or in a tuft of spinifex.

Eggs.—Three or four, white, marked all over, but particularly at the larger end, with small dots and splashes of pale reddish-brown, where sometimes a zone is formed. Breeding-season: June to September.

6. Blue-and-white Wren *Malurus cyanotus* Gould—6A. Female
cŷ'-a-nōt'-us—Gk, *cyanos*, blue; Gk, *noton*, back.

Distribution.—The interior of southern Queensland, New South Wales, and Victoria, to the coastal districts of Western Australia.

Notes.—Also called White-winged Wren. In pairs or family parties, showing a preference for spinifex, salt-bush, blue-bush, and open roly-poly country. Except that the fully coloured male is shy, it is similar in habits to the other species of Wrens. Food: insects and their larvæ.

Nest.—A dome-shaped structure with a side entrance near the top, composed of dried grasses, and lined with feathers or wool. Usually placed in a low bush or in a tuft of tall grass, close to the ground.

Eggs.—Three or four, white, finely freckled with purplish or reddish-brown markings; some eggs have a well-defined zone at the larger end. Breeding-season: September to January.

7. White-backed Wren *Malurus leuconotus* Gould
lēūc-o-nōt'-us—Gk, *leucos*, white; Gk, *noton*, back.

Distribution.—Interior of South Australia.

Notes.—Nothing is definitely known of the habits or economy of this species, few specimens only being in existence. The female is similar to the female Blue-and-white Wren.

Nest.—A dome-shaped oblong structure of fine grass, ornamented and mixed with cobweb and wool, and lined inside with cotton from the native "cotton-bush," or the silky down from the seed-pods of an *Asclepiad*. Placed in a small tuft of coarse grass near the ground, at other times among the lower branches and grass at the base of a cotton-bush.

Eggs.—Three or four, white, with a faint pinkish or reddish tinge, minutely freckled and spotted with dull red, particularly at the larger end where often a zone is formed.

8. Variegated Wren *Malurus lamberti* Vigors and Horsfield—8A.
Female

lamberti—A. B. Lambert (1761-1842), Secretary, Linnean Society, London.



FAIRY WRENS OF THE HEATH AND SHRUBS

Distribution.—Throughout the coastal districts of southern Queensland and New South Wales.

Notes.—Also called Lambert's Wren. Usually in pairs or family parties, frequenting the undergrowth, heath-lands, and thickets on the fringes of scrubs. It is very local in habits, a pair keeping to its own territory; a much shyer species than the Blue Wren; its call is a subdued twittering. Food: insects and their larvæ.

Nest.—A dome-shaped structure with an entrance near the top, composed of dried grasses, bark-fibre, and spiders' egg-bags; lined with fine dried grasses, bark-fibre, fur, hair, or plant down. Usually placed near the ground in a low bush, tuft of grass, or clump of ferns.

Eggs.—Three or four, white or fleshy to reddish-white, speckled or spotted with different shades of red, the markings being more numerous on the larger end. Breeding-season: September to December.

9. Purple-backed Wren *Malurus assimilis* North

as-sim'-i-lis—L., *assimilis*, similar.

Distribution.—Queensland, New South Wales, South Australia to Western Australia (Dirk Hartog Island).

Notes.—Chiefly an inland species, usually met with in pairs or family parties. Its favourite haunts are mulga, mixed acacia scrubs, or undergrowth bordering creeks; also spinifex country. Very similar in habits to the Variegated Wren. Food: insects and their larvæ. The female is similar in plumage to the female Variegated Wren.

Nest.—A dome-shaped structure with a narrow entrance near the top, composed of dried grasses and plant-stalks; lined with plant down. Usually placed in a bush, up to 5 feet from the ground.

Eggs.—Three or four, white, sprinkled with dots, spots, and blotches of faint pinkish-red, the markings being more numerous on the larger end. Breeding-season: October and November.

10. Red-winged Wren *Malurus elegans* Gould—10A. Female

ēl'-e-gans—L., *elegans*, handsome.

Distribution.—The coastal districts of south-western Australia, from Perth to Albany.

Notes.—Also called Graceful Wren. Usually in pairs or family parties, inhabiting chiefly the heath-lands bordering swamps. It is very shy, resorting to the seclusion of the undergrowth. Food: insects and their larvæ.

Nest.—A dome-shaped structure with an entrance near the top, composed of dried grasses and strips of bark; lined with feathers. Usually placed in a low bush near the ground.

Eggs.—Three or four, pinkish-white, freckled with spots of reddish-brown, the markings being more numerous on the larger end. Breeding-season: September to December.

11. Lovely Wren *Malurus amabilis* Gould—11A. Female
am-ā-bil-is—L., *amabilis*, lovely.

Distribution.—Tropical northern Australia.

Notes.—Usually in pairs or family parties, frequenting dwarf scrub-lands and spinifex country. It is very shy, seldom being seen away from cover; similar in habits to the Variegated Wren. Food: insects and their larvæ.

Nest.—A dome-shaped structure with an entrance near the top, composed of dried grasses and skeletons of leaves, mixed with spiders' webs and egg-bags; lined with fine grasses, rootlets, and fur. Generally placed in a low bush.

Eggs.—Usually three, white or pinkish-white, sprinkled over with minute specks and spots of dull reddish-brown, the markings predominating at the larger end. Breeding-season: September to October.

12. Blue-breasted Wren *Malurus pulcherrimus* Gould—12A. Female
pul-cher'-rim-us—L., *pulcherrimus*, very pretty.

Distribution.—South Australia to Western Australia (Eyre Peninsula to the Wongan Hills and Stirling Ranges).

Notes.—In pairs or family parties according to the season of the year, its favourite haunts being dwarf marlock or mallee scrubs growing in patches on or about hills and dry creek-beds. It is very secretive in its movements, more especially the male, otherwise this species is similar in habits to the Variegated Wren. Food: insects and their larvæ.

Nest.—A dome-shaped structure with a side entrance near the top, similar in construction to the nests of the other species of Wrens.

Eggs.—Usually three, white, spotted with reddish-brown at the larger end. Breeding-season: September to November.

13. Red-backed Wren *Malurus melanocephalus* Latham—13A. Female
mel'-an-o-ceph'-al-us—Gk, *melas* (*melanos*), black; Gk, *cephale*, head.

Distribution.—From Derby (north-western Australia) across tropical northern Australia to northern Queensland, and eastern Australia as far south as the Hunter River (New South Wales).

Notes.—Also called Scarlet-backed Wren and Black-headed Wren. Usually in pairs or family parties, frequenting dwarf scrubs, heath-lands, and swampy grass-flats. Very similar in habits to the Variegated Wren. Food: insects and their larvæ.

Nest.—A dome-shaped structure with a side entrance near the top, composed of dried grasses; lined with finer materials. Usually placed in a tuft of grass, within a few inches of the ground.

Eggs.—Three or four, white, spotted chiefly at the larger end with reddish-brown markings. Breeding-season: August to February.

14. Purple-crowned Wren *Rosina coronata* Gould—14A. Female

Rosina—in honour of the late Mrs S. A. White of Adelaide, South Australia: *cor-on-ā'-ta*—L., *coronatus*, crowned.

Distribution.—From Derby (north-western Australia) through the Northern Territory to the Leichhardt River (northern Queensland).

Notes.—In pairs or family parties, inhabiting the cane-grass and areas of pandanus palms growing near rivers. It has no song, but utters a "chirp" while searching for food among the tall grasses, up the stems of which it climbs with ease; it also catches food on the wing. Food: insects and their larvæ.

Nest.—A bulky structure with a side entrance near the top, composed of strips of paper bark and blades of cane-grass; lined with fine grass-roots; it frequently has a platform of grass built below the entrance. Generally placed in cane-grass.

Eggs.—Usually three, pinkish-white, marked all over, but chiefly at the larger end, with ill-defined spots or splashes of dark brownish-pink. Breeding-season: January to June (July to December).

PLATE XXVII

SOME BIRDS OF THE AIR AND OPEN SPACES

1. Little Wood-swallow *Artamus minor* Vieillot

Ar'-tam-us—Gk, *artamos*, butcher: *mi'-nor*—L., *minor*, smaller.

Distribution.—Australia (except the southern portion); also occurs in Timor.

Notes.—Usually in pairs or small flocks, frequenting the plains, chiefly those studded with low trees; also the rugged ranges of the interior and northern parts. This species is very similar in habits and economy to the Dusky Wood-swallow.

Nest.—An open, cup-shaped structure of twigs and plant-stems, lined with rootlets; placed in the end of a hollow limb, in a cavity in the trunk of a tree, or in clefts of cliffs. Often the nest consists only of a scanty lining of materials placed in a hollow.

Eggs.—Usually three, dull white, spotted and blotched, chiefly at the larger end, with shades of brown and underlying markings of slaty-grey. Breeding-season: October to January.

2. Dusky Wood-swallow *Artamus cyanopterus* Latham

cŷ-an-op'-ter-us—Gk, *cyanos*, blue; Gk, *pteron*, wing.

Distribution.—Australia (except tropical northern Australia), Tasmania, and the islands of Bass Strait.

Notes.—Also called Sordid Wood-swallow, Martin, and Jacky Martin. Usually in pairs or flocks, frequenting the open spaces in forest country and partly cleared lands. It also frequents orchards and gardens, where it does an immense amount of good in destroying insect pests of various kinds. Like the other species of Wood-swallows, its flight is swift and graceful; it has the habit of roosting clustered together, like a swarm of bees, on the limb of a tree, especially during very cold weather. Food: insects of various kinds, procured on the wing.

Nest.—An open, cup-shaped structure, composed of thin, dried twigs; lined with grasses, rootlets, and occasionally horse-hair. Usually placed in a thick forked branch of a tree, sometimes inside a projecting piece of bark on a tree trunk, or on top of a stump, at heights up to 40 feet or more from the ground.

Eggs.—Three or four, white or creamy-white, spotted and blotched, chiefly at the larger end, with varying shades of brown, black, and grey markings, and often with well-defined zones. Breeding-season: September to January.



SOME BIRDS OF THE AIR AND OPEN SPACES

3. Grey Swiftlet *Collocalia francica* Gmelin

Coll-o-cal'-i-a—Gk, *colla*, glue; Gk, *calia*, nest: *francica*—Isle of France, now called Mauritius.

Distribution.—Northern Queensland and the islands off the coast; also occurs from the Mauritius to Oceania.

Notes.—Usually in small flocks, flying over the open spaces of the coastal ranges, the tops of the scrub, or about the precipitous sides of rocky ridges. Occurs commonly at Dunk Island, the only recorded breeding-place of the species, where it nests in caves. Food: small insects, caught on the wing.

Nest.—A small, shallow, saucer-shaped structure, composed of a glutinous substance made from the bird's saliva, with which is mixed fibre, grass-stems, and sheaths of grass-stalks; lined with feathers. Nests are usually attached together, and fastened to the walls of the cave with the same glutinous substance.

Eggs.—Usually one, pure white Breeding-season: September to December.

4. Fork-tailed Swift *Micropus pacificus* Latham

Micr'-o-pus—Gk, *micro*, small; Gk, *pus* (*pous*), *podos*, foot: *pac-if'-ic-us*—*pacificus*, of the Pacific Ocean.

Distribution.—Australia, accidental to Tasmania and New Zealand; also occurs in north-eastern Asia, India, Malaysia, and New Guinea.

Notes.—Also called White-rumped Swift. Usually in flocks which visit Australia during the spring and summer months. Generally seen "hawking" for insects high in the air, or just above the tree-tops; at times, close to the ground. It is usual for large flocks to appear during unsettled weather conditions. Food: insects, caught on the wing.

Nest.—A small, perfectly round plate of straw, thickest at the rim and very slightly dished in the centre; a few feathers are worked into the outer part of it, which is hardened with glutinous matter produced by the bird. Placed in a vertical cranny or in a horizontal fissure in a low rocky cliff, at about a full arm's length from the entrance. Breeds in small colonies on a small island off the north-eastern coast of China.

Eggs.—One to three, pure white and elongated in shape. Breeding-season: June (Capt. Henry Lane Cochrane, R.N., M.B.O.U.).

5. Spine-tailed Swift *Hirundapus caudacutus* Latham

Hi-run-dā'-pus—L., *hirundo*, swallow; Gk, *apus* (*apous*), without feet: *caud-ac-ū'-tus*—L., *cauda*, tail; L., *acutus*, sharp.

Distribution.—Australia generally (except the interior), Tasmania, and accidental to New Zealand; also occurs in Siberia, China, and Japan.

Notes.—Also called Needle-tailed Swift. In flocks, visiting Australia during the spring and summer months. It is similar in habits to the Fork-tailed Swift. Food: insects, caught on the wing.

Nest.—Like that of other swifts, composed of materials picked up in the air and, according to some writers, a gelatinous substance secreted by the bird. Breeds in crevices of cliffs and, according to Przevalsky, also in hollow trees.

Eggs.—Two or three, dull white, long oval in form.

6. Fairy Martin *Hylochelidon ariel* Gould

Hÿ-lo-chel-î'-don—Gk, *hyle*, wood; Gk, *chelidon*, swallow: *ar-î'-el*—Gk, *aerios*, airy; *ariel*, a fairy, sprite.

Distribution.—Australia and Tasmania.

Notes.—Also called Bottle Swallow, Cliff Swallow, and Land Swallow. In flocks, frequenting open country, chiefly in the neighbourhood of creeks and rivers. This species is nomadic in its movements, but if the weather conditions are mild, it will remain in the same locality throughout the year. Food: insects, caught on the wing.

Nest.—A retort or bottle-shaped structure, composed of pellets of mud; lined with dried grasses and feathers. Nests are built in rows or clusters and often the entrances only are visible. They are placed under the eaves of buildings, under the ledges of river-banks, under culverts, or in hollow trees and caves.

Eggs.—Four or five, dull white, finely freckled with yellowish or very faint reddish-brown markings, chiefly at the larger end, often forming a zone. Breeding-season: August to January or February.

7. Welcome Swallow *Hirundo neoxena* Gould

Hi-run'-do—L., *hirundo*, a swallow: *ne-ox'-en-a*—Gk, *neos*, new; Gk, *xenos*, strange.

Distribution.—Australia and Tasmania.

Notes.—Also called House Swallow. A common and very well-known bird, frequenting park-lands and settled areas. It is, for the most part, a migratory species; prior to departure for the northern parts of Australia, in the autumn, it congregates in large flocks. In many districts numbers remain throughout the year. It has a sweet, twittering song. Food: small flying insects.

Nest.—A cup-shaped structure, composed of pellets of mud reinforced with small pieces of grass; lined with grass, horse-hair, and feathers. Nests are built under eaves of buildings, verandas, bridges, and in sheltered caves.

Eggs.—Four or five, white, freckled and spotted, particularly towards the larger end, with purplish-brown and underlying markings of lavender. Breeding-season: August to December, occasionally during the autumn months.

8. White-backed Swallow *Cheramæca leucosterna* Gould

Chër-am-æc'-a—Gk, *cheramos*, cleft; Gk, *oikos*, house: *lëuc-o-stern'-a*—Gk, *leucos*, white; Gk, *sternon*, breast.

Distribution.—Australia generally.

Notes.—Also called Black-and-white Swallow, White-breasted Swallow, and White-capped Swallow. Usually in small flocks, inhabiting open country in the neighbourhood of rivers and creeks. It is chiefly found in the inland districts. Nomadic generally, though at times stationary. In cold windy weather it often shelters in numbers in old nesting burrows. Food: small insects, caught on the wing.

Nest.—In a burrow in the vertical bank of a creek, about 2 or 3 feet in length, with an oval nesting-chamber at the end which is lined with small leaves, grass, and other material.

Eggs.—Four to six, usually five, pure white. Breeding-season: August to December.

9. Cinnamon Bush-lark *Mirafra woodwardi* Milligan

Mirafra—native name: *woodwardi*—B. H. Woodward, a former director of Perth Museum, Western Australia.

Distribution.—Mid-western Australia (Onslow).

Notes.—Usually in pairs or small parties, inhabiting the plains. When flushed, it flies a few yards only with a peculiar jerky flight, often remaining for a second on quivering wings before suddenly dropping into the shelter of the grass. It is one of our finest songsters and is an excellent mimic. Like the Horsfield Bush-lark, it has the habit of ascending to considerable heights, and there remains hovering in mid-air, or flying slowly about, while it pours forth its pleasing song. It sings during the day and at night, and is to be heard at its very best during the moonlight nights of midsummer. Food: insects and seeds.

Nest.—A cup-shaped hollow scraped in the ground; thickly lined with dried grasses. Nests are generally well concealed in a tuft of grass.

Eggs.—Usually four, greyish-white, minutely speckled and spotted all over, but chiefly about the larger end, with olive and dull slaty-grey markings. Breeding-season: August to December, and even February or March.

10. Horsfield Bush-lark *Mirafra javanica* Horsfield *javanica*—of Java.

Distribution.—Australia (except the south-western portion).

Notes.—Also called Skylark. Usually in pairs or small parties, inhabiting open plains, grassy flats, and cultivation paddocks. It is similar in habits and economy to the Cinnamon Bush-lark.

Nest.—Like that of the Cinnamon Bush-lark.

Eggs.—Usually three, greyish-white or yellowish-grey, thickly freckled all over with dark grey or greyish-brown; some eggs have the markings confluent towards the larger end, forming a zone. Breeding-season: August to December, often as late as February.

11. Ground-lark (Pipit) *Anthus australis* Vieillot

An'-thus—Gk, *anthos*, bird: *australis*—southern (Australian).

Distribution.—Australia and Tasmania.

Notes.—Usually singly or in pairs, frequenting open country generally. It is common everywhere, even in the public parks of our cities. Frequently, when flushed, it rises with a graceful undulating flight, uttering with each upward movement its warbling notes, then suddenly it drops to the ground. It rarely flies for any great distance, generally relying on short flights, or running to keep out of one's way. Food: chiefly insects; also seeds.

Nest.—A rather deep, cup-shaped structure, composed of dried grasses, and built in a hollow in the ground. It is generally placed near or under a tuft of grass, and sometimes near a bush or stone.

Eggs.—Three or four, greyish-white, finely spotted and freckled all over, but chiefly at the larger end, with pale umber and dull slaty-grey markings. Breeding-season: August to January.

12. Chestnut-backed Quail *Turnix castanota* Gould

Tur'-nix—L., *turnix*, quail: *cas-ta-nōt'-a*—Gk, *castanon*, chestnut; Gk, *noton*, back.

Distribution.—From Kimberley (north-western Australia) to Arnhem Land (Northern Territory).

Notes.—Usually in coveys of from fifteen to thirty in number, frequenting the sandstone country. When disturbed, these birds seldom rise together, but run along the ground; it is only when very closely pressed that they will take wing, and then they merely fly a short distance. While running on the ground their heads are thrown up as high as their necks will permit, and as their bodies are carried very erect, a waddling motion is given to their gait, which is very amusing. Food: mainly seeds. The female is much larger than the male.

Nest.—A depression beneath a tussock or in a clump of grass, especially in the neighbourhood of water.

Eggs.—Usually four, greenish-white; some are boldly speckled with very dark brown, or almost black, markings, especially on the larger end, while others have much smaller faint spots of purplish-brown. Breeding-season: January.

13. Buff-breasted Quail *Turnix oliveri* Robinson

olivei—E. Olive, collector, Cooktown, Queensland.

Distribution.—Northern Queensland (Cape York Peninsula).

Notes.—Usually in pairs or small coveys, inhabiting the rank grasslands in open forest country. Little is known of its habits, except that it is remarkably shy and difficult to flush. Food: seeds; a large quantity of fine gravel is swallowed to aid digestion. The female is much larger than the male.

Nest.—An ovate structure with an entrance at the side, composed of soft, dry, narrow blades of long fine grass; placed in a shallow depression in the ground.



HEATH-LANDS

Photo. K. A. Hindwood



HEATH

Photo. P. A. Gilbert

Eggs.—Usually four, whitish, minutely speckled, spotted, and blotched all over with markings of reddish-brown, bluish-grey, and black, the last two colours being the most predominant. Breeding-season: March.

14. Little Quail *Turnix velox* Gould

vē'-lox—L., *velox*, swift.

Distribution.—Australia generally.

Notes.—Also called Button Quail, Swift-flying Quail, Dotterel Quail, Butterfly Quail, and Thick-billed Quail. Usually in coveys, large or small, inhabiting the open plains. It is nomadic, its appearance being regulated by the rainfall; if the season is a good one, large flocks appear; in times of drought it seldom visits its old haunts. It lies close, and when flushed, flies short distances at a great speed. Generally the flocks scatter when disturbed, making it difficult to flush them again. Food: seeds and fine gravel. The female is larger than the male.

Nest.—A slight depression in the ground, lined with grass; usually placed near and partly hidden by a tuft of grass.

Eggs.—Usually four, buffy-white, thickly spotted with slate-grey, chestnut, and odd spots of purplish-brown. Breeding-season: September to December, but individuals may be found breeding practically throughout the year.

15. Red-chested Quail *Turnix pyrrhotorax* Gould

pyr-rho-thō'-rax—Gk, *pyrrhos*, fire-coloured; Gk, *thorax*, chest.

Distribution.—Northern, eastern, southern, and central Australia.

Notes.—Also called Chestnut-breasted Quail and Yellow Quail. Usually in pairs or small coveys, inhabiting grass-lands, either in high dry country or river-flats. It is nomadic in habits. Food: seeds.

Nest.—A slight depression in the ground, scantily lined with grasses, usually protected by a grass tuft or sheltered by a low shrub; sometimes situated in a grain crop.

Eggs.—Usually four, buffy-white, spotted with slate-grey, chestnut, and dark brown markings. Breeding-season: September to December.

16. Red-backed Quail *Turnix maculosa* Temminck—16A. Female

mac'-u-lō'-sa—L., *maculosus*, full of spots.

Distribution.—Northern and eastern Australia to as far south as northern Victoria; also occurs in New Guinea.

Notes.—Also called Black-backed Quail, Orange-breasted Quail, and Black-spotted Quail. Usually in pairs or small coveys, chiefly inhabiting low marshy lands studded with low scrub. It is a shy species, lies very close, and is very difficult to flush. Food: seeds.

Nest.—A hollow in the ground, scantily lined with grass; sheltered by a tuft of grass, a low bush, or herbage.

Eggs.—Usually four, greyish-white to a faint yellowish or light stone-grey, almost entirely hidden by very minute freckles of pale umber intermingled with other markings of varied shades of grey. Breeding-season: October to January or February.

17. Stubble-quail *Coturnix pectoralis* Gould—17A. Female

Cot-urn'-ix—L., *coturnix*, quail: *pec-tor-ā'-lis*—L., *pectoralis*, breasted.

Distribution.—Australia (except the tropical coastal districts) and Tasmania.

Notes.—Usually in coveys, large or small, inhabiting open plains, well-grassed lands, and cultivation paddocks. It is nomadic in habits, often appearing in immense flocks in good seasons. It is considered to be one of the finest game birds of Australia, as well as one of the most useful. Food: seeds (mostly of noxious weeds), green grasses of various kinds, and insects and their larvæ.

Nest.—A grass-lined depression in the ground, sheltered by a tuft of grass, herbage, or low bush; sometimes situated in standing crops.

Eggs.—Usually about seven or eight, buffy, freckled and blotched with reddish-brown over the entire surface. Breeding-season: usually September to January or February.

18. Plain Wanderer *Pedionomus torquatus* Gould—18A. Female

Ped'-i-o-nom'-us—Gk, *pedionomos*, plain-wandering: *tor-quā'-tus*—L., *torquatus*, collared.

Distribution.—Western New South Wales, western Victoria, central Australia, and South Australia.

Notes.—Also called Collared Plain Wanderer and Turkey Quail. Usually singly or in pairs, inhabiting open plains and level grassed lands. It flies only when compelled to do so, and when disturbed, crouches down to hide itself in the grass. When running about it has the habit of raising itself in an upright position on its toes, to enable it to take a wide survey of its surroundings. Food: seeds and insects.

Nest.—A grass-lined depression in the ground, frequently sheltered by a tuft of grass, occasionally a herbaceous plant, or low bush.

Eggs.—Usually four, stone-coloured or yellowish-white, thickly freckled and blotched with a few smudges, interspersed with different shades of umber and slaty-grey; some markings appear as if beneath the shell. Breeding-season: September to January or February.

19. Brown Song-lark *Cinclorhamphus cruralis* Vigors and Horsfield

Cin-clo-rhamph'-us—Gk, *cinclos* (*kigklos*), bird; Gk, *rhamphos*, bill: *crūr-ā'-lis*—L., *cruralis*, (strong) legged.

Distribution.—Australia generally.

Notes.—Also called Black-breasted Lark, Harvest-bird, Singing Lark, Skylark, and Corn Crake. Usually in pairs, inhabiting grass-lands and

cultivation paddocks. It is a migratory species, usually arriving in south-eastern Australia during August or September, departing about February. It spends much of its time on the ground, but frequently perches on fences and stumps, or in dead trees. Usually when flushed it will sing as it flies away. It is one of our finest songsters, ascending high in the air, singing as it rises or while hovering with trembling wings; it then suddenly descends, uttering a chuckling sound as it drops. Food: insects of various kinds. The plumage of the male during the breeding-season is much darker; the female is considerably smaller than the male.

Nest.—A cup-shaped structure, composed of dried grasses; lined with softer materials. Built in a depression in the ground, and usually placed near a tuft of grass or a low shrub.

Eggs.—Three or four, salmon-pink, marked all over with pinkish-red markings, with a well-defined zone at the larger end. Breeding-season: September to December, January, or February.

PLATE XXVIII

BIRDS OF THE REED-BEDS AND GRASS-LANDS

1. Black-ringed Finch *Steganopleura annulosa* Gould

Steg-an-o-plēūr'-a—Gk, *steganos*, covered; Gk, *pleura*, side: *an-nu-lō'-sa*—L., *annulosus*, ringed.

Distribution.—North-western Australia and Northern Territory.

Notes.—Also called Black-rumped Double-bar. Usually in pairs or flocks, frequenting grass-lands bordering watercourses. It is generally seen in tall grass or low thickets. It has a few notes which are uttered in an undertone. Food: seeds of grasses and herbaceous plants.

Nest.—A bottle-shaped structure, composed of dried grasses; lined with finer materials. Generally placed in an exposed situation in a low bush.

Eggs.—Four to six, white. Breeding-season: February to June, and July to December.

2. Banded Finch *Steganopleura bichenovii* Vigors and Horsfield

bichenovii—Bicheno, a secretary of the Linnean Society, London, 1826.

Distribution.—Tropical northern Australia to New South Wales.

Notes.—Also called Double-bar, White-rumped Double-bar, White-rumped Banded Finch, Owl-faced Finch, and Bicheno's Finch. Usually in pairs or flocks, frequenting grass-lands bordering watercourses and plains, particularly those intersected with low scrubby bushes. It is a friendly bird and is generally seen feeding on the seeds of grasses and other plants, and also on figs and berries. Its song is very like that of the Black-ringed Finch.

Nest.—A bottle-shaped structure, composed of dried grasses; lined with feathers and other soft materials. Generally built in a small bush or in tall grass.

Eggs.—Four to eight, white. Breeding-season: under normal conditions, July to December.

3. Zebra Finch *Taniopygia castanotis* Gould—3A. Female

Tān'-i-o-pyg'-i-a—Gk, *tainia*, band; Gk, *pyge*, rump, tail: *cas-tan-ōt'-is*—Gk, *castanon*, chestnut; Gk, *otos*, genitive of *ous*, ear.

Distribution.—Australia generally.

Notes.—Also called Chestnut-eared Finch. Usually in pairs or flocks, frequenting grass-lands bordering watercourses and plains intersected with scrub; also common in partly cleared and cultivated lands. It is nomadic in habits, and spends much of its time on the ground feeding chiefly on the seeds of grasses and herbaceous plants. Its song is a quaint soft trill, somewhat like a tune played on a toy musical-box.

Nest.—A bottle-shaped structure, built on its side, composed of dried grasses and soft plant-stalks; lined with feathers and other soft materials. Generally placed in a low bush, in vines or shrubs growing in gardens, in hollow limbs or holes in trees, in houses or sheds, and even in rabbit burrows.

Eggs.—Four to eight, faint bluish-white. Breeding-season: under normal conditions, August to December.

4. Painted Finch *Cayleya picta* Gould

Cayleya.—N. W. Cayley, the author of this book: *pic'-ta*—L., *pictus*, painted.

Distribution.—Mid-western and north-western Australia, Northern Territory, central Australia, and north-western Queensland (Cloncurry Range).

Notes.—Usually in pairs or small flocks, frequenting stony hillsides where spinifex flourishes or grass-lands bordering watercourses. It has no song, but utters a pleasing twitter when flushed. It spends much of its time on the ground, searching for the seeds of grasses and other plants.

Nest.—A flimsy, bottle-shaped structure, composed of dried grasses, chiefly spinifex stems; lined with plant down. Generally placed in a natural cavity near the top of a clump of spinifex, or in a low bush.

Eggs.—Four or five, white. Breeding-season: in any month from April to October or December.

5. Red-browed Finch *Ægitha temporalis* Latham

Æ-gin'-tha—Gk, *aigintha*, a kind of bird: *tem-por-ā'-lis*—L., *temporalis*, templed.

Distribution.—Eastern Australia, from northern Queensland to South Australia.

Notes.—Also called Redhead, Waxbill, Sydney Waxbill, Redbill, and Temporal Finch. Usually in pairs or flocks, frequenting alike grass-lands, partly cleared and cultivated lands, open forest, and the fringes of scrub-lands. It is a common species and abundant in the neighbourhood of towns and cities. It spends much of its time on the ground, feeding on the seeds of grasses and herbaceous plants. It has no song, but utters a plaintive twitter when flushed or when in flight.

Nest.—A bulky, bottle-shaped structure, composed of dried and green grasses; lined with feathers and fine grasses. Generally placed in a small tree or bush, frequently in one entangled with vines.

Eggs.—Five to eight, white. Breeding-season: September to January.

6. Star Finch *Bathilda ruficauda* Gould

Bath-il'-da—from a girl's name (Fr.), relation or sister of Prince Lucien Bonaparte: *rū-fi-cāūd'-a*—L., *rufus*, red; L., *cauda*, tail.

Distribution.—Northern Australia, as far south as New South Wales on the east and the Coongan River on the west.

Notes.—Also called Red-faced Finch and Red-tailed Finch. Usually in pairs or flocks, frequenting chiefly grass-lands bordering watercourses. It is generally seen on the ground searching for the seeds of grasses and other plants. It has a feeble call-note, somewhat like that of the Grey-breasted Silver-eye.

Nest.—A bottle-shaped structure, composed of dried grasses; lined with fine grasses and feathers. Generally placed in a low tree or a bush.

Eggs.—Three to five, white. Breeding-season: probably September to January.

7. Blue-faced Finch *Erythura trichroa* Kittlitz

E-ryth-ūr'-a—Gk, *erythos*, red; Gk, *ura* (*oura*), tail: *trī-chrō'-a*—Gk, *tri*, three; Gk, *chroa*, colour.

Distribution.—Northern Queensland (Cape York to Cairns district); also occurs in the Molucca Islands, New Guinea, Solomon Islands, New Hebrides, Loyalty Islands, Caroline Islands, and Bismarck Archipelago.

Notes.—Also called Tricoloured Parrot-finch. Only four records are known of the occurrence of this Finch in Australia. Probably these records are of stragglers as this species has not otherwise been observed. In the islands they are plentiful, and congregate in pairs or flocks, and nest in the gardens of the settlers and natives.

Nest.—A neat, rounded structure, with a small entrance at the side, composed of fibre or grass; lined with soft materials. Generally placed in shrubs or in mango trees.

Eggs.—Three to six, white. Breeding-season: not recorded.

8. Plum-headed Finch *Aidemosyne modesta* Gould

Ai-de-mos'-y-nē—Gk, *aidemosyne*, modesty: *mod-est'-a*—L., *modestus*, modest.

Distribution.—From Queensland to Victoria.

Notes.—Also called Modest Finch, Cherry Finch, Plain-coloured Finch, and Diadem Finch. Usually in pairs or small flocks, frequenting grass-lands and the open areas bordering watercourses. It is generally seen feeding either on or near the ground on the seeds of grasses and other plants. The female is much duller in coloration than the male, and does not possess the blackish chin.

Nest.—A bottle-shaped structure, composed of dried grasses; lined with feathers. Generally built in tall grass, among thistles, or in a low bush.

Eggs.—Five to seven, white. Breeding-season: September to January.



BIRDS OF THE REED-BEDS AND GRASS-LANDS

9. Diamond Sparrow *Zonæginthus guttatus* Shaw

Zōn-æ-ginth'-us—L., *zona*, band; Gk, *aigntha*, a kind of bird: *gut-tā'-tus*—L., *guttatus*, spotted.

Distribution.—From southern Queensland to Victoria and South Australia.

Notes.—Also called Spotted-sided Finch, Diamond Firetail, and Java Sparrow. Usually in pairs or small flocks, frequenting open spaces and grass-lands. It is an attractive bird and passes most of its time on the ground, where it feeds on the seeds of grasses and other plants. Its call-note is a plaintive long-drawn-out "Kweet."

Nest.—A long, bottle-shaped structure, placed on its side, composed of dried grasses; lined with finer grasses. Generally built in a bush or tree in thick foliage, sometimes in the outer loose material of the nest of an Eagle.

Eggs.—Four to seven, white. Breeding-season: August to December or January.

10. Yellow-tailed Finch *Donacola flaviprymna* Gould

Do-nac'-o-la—Gk, *donax*, *donacos*, reed; L., *colere*, to inhabit: *flāv-i-prym'-na*—L., *flavus*, yellow; Gk, *prymnos*, hindmost.

Distribution.—North-western Australia and Northern Territory.

Notes.—Also called Yellow-rumped Finch. Usually in pairs or flocks, frequenting chiefly the tall cane-grass growing on the margins of swamps and rivers. It is mostly an inland dweller, but in times of drought visits the coastal districts. Food: seeds of grasses and other plants.

Nest.—A large, bottle-shaped structure, composed of dried grasses; lined with finer grasses and a few feathers. Generally built in tall grass or a low bush.

Eggs.—Four to six, white. Breeding-season: probably July to January.

11. Pictorella Finch *Donacola pectoralis* Gould

pec-tor-ā'-lis—L., *pectoralis*, breasted.

Distribution.—North-western Australia and Northern Territory.

Notes.—Also called White-breasted Finch. Usually in pairs or flocks, frequenting grass-lands bordering watercourses and open areas. It is generally seen on or near the ground, feeding on the seeds of grasses and other plants. It has a feeble call-note, "Chip, chip, chip."

Nest.—A large, bottle-shaped structure, composed of dried grass-stems. Generally built in a tussock of grass.

Eggs.—Four to six, white. Breeding-season: July to December, and often as late as March and April.

12. Chestnut-breasted Finch *Donacola castaneothorax* Gould

cas-tan-e-o-thō'-rax—L., *castaneus*, chestnut; Gk, *thorax*, chest.

Distribution.—Tropical northern Australia to New South Wales.

Notes.—Also called Chestnut Finch, Bullfinch, Barley-bird, and Barley Sparrow. Usually in pairs or flocks, frequenting reed-beds and grass-lands, chiefly of the coastal districts. It is generally seen near or on the ground, feeding on the seeds of grasses and other plants. During the late autumn and winter months, when it congregates in large flocks, it does considerable damage to crops.

Nest.—A bulky, oval structure, with a long spout-like entrance, composed of dried grasses, plant-stalks, and tendrils; lined with finer grasses and other soft materials. Generally placed in a low bush, often one entangled with vines, in a tuft of tall grass, or among a growth of tall weeds.

Eggs.—Four to eight, white. Breeding-season: usually July to December, often as late as April.

13. Gouldian Finch *Poëphila gouldiæ* Gould—13A. Female. 13B. Red-headed phase (male).

Po-ē'-phil-a—Gk, *poē*, grass; Gk, *philos*, fond of: *gouldiæ*—in honour of the wife of John Gould.

Distribution.—Tropical northern Australia.

Notes.—Also called Painted Finch and Purple-breasted Finch. Usually in pairs or flocks, frequenting open country, dry ridges where spinifex flourishes, or grass-lands bordering watercourses. It usually feeds on or near the ground on the seeds of grasses and other plants, often far from water, which it visits at dusk. There is a phase with a golden yellow head as well as the two pictured.

Nest.—A bottle-shaped structure, composed of dried grasses; placed in a variety of situations—in tall grass, bush, a small tree, or in the hollow limb of a tree.

Eggs.—Five to eight, white. Breeding-season: August to December, and some seasons as late as March, April, and May.

14. Masked Finch *Poëphila personata* Gould

per-sō-nā'-ta—L., *personatus*, masked.

Distribution.—Tropical northern Australia.

Notes.—Usually in pairs or flocks, frequenting grass-lands bordering watercourses. It is generally seen feeding either on or near the ground, principally on the seeds of grasses and other plants. When in flight it utters a feeble call-note, "Twit-twit-twit," and at other times a drawn-out, mournful note.

Nest.—A bulky, bottle-shaped structure, composed of dried grasses; lined with feathers and small pieces of charcoal about the size of its eggs. Generally built in grass, near or upon the ground, sometimes in a small tree or bush.

Eggs.—Five or six, white, which soon become discoloured through contact with pieces of charcoal. Breeding-season: August to December, and often as late as April, May, and June.



PLAIN COUNTRY

Photo, A. J. Campbell



DESERT COUNTRY

Photo, Dr Brooke Nicholls

15. Black-throated Finch *Poëphila cincta* Gould

cinc'-ta—L., *cinctus*, banded.

Distribution.—Queensland and New South Wales.

Notes.—Also called Parson Finch and Black-throat. Usually in pairs or flocks, frequenting grass-lands bordering watercourses and open country. It is very similar in habits to the Masked Finch. Food: seeds of grasses and other plants.

Nest.—A bottle-shaped structure, composed of dried grasses; lined with feathers. Generally built in tall grass, a low bush, or a small tree.

Eggs.—Five to nine, white. Breeding-season: August to December.

16. Black-tailed Finch *Poëphila atropygialis* Diggles

a-tro-pyg-i-ā'-lis—L., *ater*, black; Gk, *pyge*, rump, tail.

Distribution.—Northern Queensland (Normanton).

Notes.—Also called Diggles' Finch and Black-rumped Finch. It is similar in habits and economy to the Black-throated Finch.

Nest.—A bulky, flask-shaped structure, composed of dried grasses, twigs, and leaves of small plants; lined with fine hair-like seed-tops of grasses. Generally built in tall grass, a bush, or in a pandanus palm-tree.

Eggs.—Six to nine, white, often tinged with faint green. Breeding-season: August to January, and often as late as April or even June.

17. Long-tailed Finch *Poëphila acuticauda* Gould

ac-ū'-ti-cāūd'-a—L., *acutus*, sharp; L., *cauda*, tail

Distribution.—North-western Australia and Northern Territory.

Notes.—Also called Long-tailed Grass-finch, frequenting open country and grass-lands bordering watercourses. It is very similar in habits and economy to the Black-throated Finch. A red-billed variety of this Finch inhabits the Northern Territory.

Nest.—A bottle-shaped structure, composed of dried grasses; lined with a few feathers. Generally built in tall grass, in a low bush or tree, or in a pandanus palm-tree.

Eggs.—Five or six, white. Breeding-season: September to January, and earlier or later according to the conditions of the season and the rainfall.

18. Crimson Finch *Neochmia phaëton* Hombron and Jacquinot

—18A. Female

Ne-och'-ni-a—Gk, *neochmia*, change: *phā'-ēt-on*—Gk, *phaëthon*, shining.

Distribution.—Tropical northern Australia (except Cape York Peninsula).

Notes.—Also called Blood Finch. Usually in pairs or flocks, frequenting grass-lands bordering watercourses. It is generally seen in cane grass and pandanus palm-trees; feeds on the seeds of grasses and other plants, also on termites.

Nest.—A bulky, bottle-shaped structure, composed of dried grasses, bark, and leaves; lined with grass, leaves, and feathers, and sometimes fur. Generally built in tall grass, in a bush, or in a pandanus palm-tree.

Eggs.—Five to eight, white. Breeding-season: August to December, and often as late as March, April, and May.

19. Pale Crimson Finch *Neochmia albiventer* Mathews—19A. Female *al-bi-ven'-ter*—L., *albus*, white; L., *venter*, belly.

Distribution.—Northern Queensland (the middle of Cape York Peninsula).

Notes.—Also called White-bellied Crimson Finch. Usually in pairs or flocks, frequenting tall grass and pandanus palm-trees bordering water-courses and swamps. It is similar in habits to the Crimson Finch. Food: seeds of grasses and other plants, also termites, which it catches while on the wing.

Nest.—Similar to that of the Crimson Finch.

Eggs.—Like those of the Crimson Finch, the breeding-period likewise.

20. Golden-headed Fantail-warbler *Cisticola exilis* Vigors and Horsfield—20A. Male in winter plumage.

Cis-tic'-o-la—L., *cistus*, a plant; L., *colere*, to inhabit: *ex-i'-lis*—L., *exilis*, slender.

Distribution.—Australia (except the south-western portion), Tasmania, and King Island; also occurs in New Guinea, the Molucca Islands, Philippine Islands, Formosa, and south-eastern Asia.

Notes.—Also called Grass-warbler, Fantail-warbler, Exiled Warbler, Corn-bird, and Barley-bird. Usually in pairs, frequenting reed-beds, swampy areas, heath-lands, and standing grain-crops. It has an animated but squeaky song, generally uttered while perched near the top of a reed, or on a high twig. Food: insects of various kinds.

Nest.—A small, dome-shaped structure with an entrance near the top, composed of very fine grasses, coated with plant down and cobwebs woven together; often several leaves are carefully worked on to the outer portion of the structure; lined with plant down. Generally built among tall grass, in a tuft of rushes, in a plant sheltered by grass, and frequently in cultivated crops.

Eggs.—Three or four, bluish-green, spotted and blotched with reddish-brown or purplish-brown markings, chiefly on the larger end, where a zone is often formed. Breeding-season: October to February.

21. Little Grass-bird *Megalurus gramineus* Gould
Meg-al-ūr'-us—Gk, *megas* (*megalos*), large; Gk, *ura* (*oura*), tail: *gram-in'-e-us*—L., *gramineus*, grassy.

Distribution.—Extra-tropical Australia, from north-western Australia to Tasmania.

Notes.—Also called Reed-warbler and Marsh-warbler. Usually in pairs, frequenting reed-beds and rank grass-lands. It is extremely shy generally keeping among the reeds. Its call-note is a long-drawn-out, plaintive whistle, repeated a few times. Food: insects and various seeds.

Nest.—An oval-shaped structure with an entrance at the top, composed of coarse grasses and aquatic plants; lined with feathers, a few of which protrude from the opening. Generally built in a tussock of long rushes growing in or near water, in a swamp tea-tree, or a mangrove tree.

Eggs.—Usually four, pinkish or reddish-white, almost obscured with freckles of purplish-red, sometimes evenly distributed, at other times forming a zone on the larger end. Breeding-season: August to January.

22. Tawny Grass-bird *Megalurus galactotes* Temminck

gal-ac-tō'-tes—derivation unknown.

Distribution.—From tropical northern Australia to New South Wales.

Notes.—Usually in pairs, frequenting reed-beds and rank grass-lands. It is a shy bird and rarely seen. Its call-note resembles a harsh and rapidly repeated "Chutch." Food: insects of various kinds, and seeds.

Nest.—A deep, cup-shaped structure, slightly domed or narrow at the top, composed of dried swamp grasses; lined with feathers. Generally built at the base of a tuft of long rushes.

Eggs.—Usually three, reddish-white, freckled all over with purplish-red markings, which predominate on the larger end. Breeding-season: October to February.

23. Reed-warbler *Acrocephalus australis* Gould

Ac-ro-ceph'-al-us—Gk, *acros*, high; Gk, *cephale*, head: *australis*—southern (Australian).

Distribution.—Australia generally, and Tasmania.

Notes.—Also called Reed-bird, Water-sparrow, and Nightingale. Usually in pairs, frequenting reed-beds. It is a migrant, generally arriving in south-eastern Australia during August and departing in March or April. It is a general favourite and common in most of the ornamental lakes of parks and gardens. It has a rich, varied, and melodious song, resembling "Twitchee-twitchee-twitchee-quarty-quarty-quarty," which is frequently poured forth at intervals throughout the day and night. Food: insects of various kinds and minute freshwater molluscs.

Nest.—A deep, cup-shaped structure, slightly narrower at the rim composed of soft paper-like sheaths of reeds and dead aquatic plants, firmly woven round the stems of the reeds between which it is placed; lined with fine dried grasses.

Eggs.—Three or four, varying from faint bluish-white or greyish-white to pale yellowish-brown, freckled and spotted with reddish and light brown and lavender markings. Breeding-season: September to February.

24. Brown Quail *Synoicus australis* Latham

Syn-ōic'-us—Gk, *synoicus*, living together: *australis*—southern (Australian).

Distribution.—Australia generally, and Tasmania; introduced into New Zealand; also occurs in the Molucca Islands, New Guinea, and New Britain.

Notes.—Also called Swamp Quail and Partridge Quail. Usually in coveys or flocks, frequenting grass-lands and swampy localities. It is nomadic in habits, its movements from one locality to another being regulated by the supply of food. Food: seeds of grasses and herbaceous plants, many of the latter being noxious weeds; also insects and their larvæ. It has a loud whistle-like note, usually uttered at daybreak and at dusk.

Nest.—A depression in the ground, lined with dried grasses, and placed in the shelter of a tuft of grass or rushes.

Eggs.—Seven to eleven, dull white or a faint bluish-white, usually finely freckled with olive or light brown markings. When the eggs are newly laid the markings may be removed by moisture. Breeding-season: October to February, and often in March, April, and May.

25. Swamp Quail *Synoicus ypsilophorus* Bosc

yps-il-oph'-or-us—bearing the Greek letter *upsilon* (shape of English Y or V).

Distribution.—South-eastern Australia and Tasmania.

Notes.—Also called Silver Quail and Tasmanian Quail. Usually in coveys or small flocks, frequenting swampy grass-lands. It is local in habits and is generally found in the coastal districts. Its call-note is much deeper than that of the Brown Quail. Food: seeds of grasses and other plants; also insects of various kinds.

Nest.—Similar to that of the Brown Quail.

Eggs.—Six to twelve, yellowish-white, thickly covered with spots of greenish-brown. Breeding-season: November to February, or March or April.

26. King Quail *Excalfactoria chinensis* Linné—26A. Female

Ex-cal-fac-tor'-i-a—L., *excalfactorius*, warming: *chinensis*—Chinese.

Distribution.—Northern, eastern, and southern Australia; also occurs in India, China, the Philippines, and Sumatra, to New Guinea.

Notes.—Also called Chestnut-bellied Quail, Least Quail, Dwarf Quail, and Swamp Quail. Usually in coveys and small flocks, frequenting swampy grass-lands. It is local in habits in New South Wales, and chiefly nomadic in southern Australia. It has a mournful call-note, which it

utters at intervals during the night and at daybreak. Food: seeds of grasses and other plants, and insects of various kinds.

Nest.—A depression in the ground, lined with dried grasses, and sheltered by a tuft of grass or herbage.

Eggs.—Usually four, pale brown, more or less covered with dots, spots, and small irregular-shaped markings of blackish-brown. Breeding-season: in eastern Australia from September to March.

PLATE XXIX

DIURNAL BIRDS OF PREY

1. Nankeen Kestrel *Falco cenchroides* Vigors and Horsfield
Fal'-co—L., *falco*, falcon: *cen-chroi'-des*—Gk, *cenchris*, speckled hawk;
-oides, from Gk, *eidos*, form = like.

Distribution.—Australia generally, and Tasmania; accidental to New Zealand.

Notes.—Also called Windhover, Mosquito-hawk, and Sparrow-hawk. Usually singly or in pairs, frequenting open and lightly timbered country. It is a common and useful species, being numerous in cultivated areas, where it does valuable service in helping to keep in check many pests. It is generally observed skimming about or hovering over paddocks, crops, and grass-lands, every now and again darting down to capture its prey. It has a peculiar chattering call which is often uttered in an apparently excited manner. Food: grasshoppers, crickets, and other insects, small reptiles, rodents, and the young of ground-breeding birds.

Nest.—In a hollow limb of a tree or crevice in a rock; sometimes a deserted nest of a Crow or Raven is used.

Eggs.—Four or five, buff, covered with reddish-brown markings, which in some eggs are very pale in colour. Breeding-season: August to November or December.

2. Collared Sparrow-hawk *Accipiter cirrocephalus* Vieillot
Ac-cip'-it-er—L., *accipiter*, hawk: *cir-ro-ceph'-al-us*—Gk, *cirros*, tawny;
 Gk, *cephale*, head.

Distribution.—Australia generally, and Tasmania; also occurs in New Guinea.

Notes.—Also called Sparrow-hawk and Chicken-hawk. Usually singly or in pairs, frequenting open and lightly timbered country. It is generally observed skimming above the surface of the ground or in and about timbered areas. During flight it is remarkably quick in its movements, and fearless when in pursuit of its prey. Its food consists almost entirely of small birds. The female is considerably larger than the male.

Nest.—A platform composed of thin twigs, either dead or green, and lined with leaves. Generally placed on a thin forked limb of a tall tree. Occasionally a deserted nest of a Whistling Eagle is used.

Eggs.—Two to four, dull white or bluish-white, sometimes spotted or blotched with reddish-brown or lavender markings. Breeding-season: September to December (east); July (west).



DIURNAL BIRDS OF PREY

3. Little Falcon *Falco longipennis* Swainson

lon-gi-pen'-nis—L., *longus*, long; L., *penna*, feather.

Distribution.—Australia generally, and Tasmania.

Notes.—Also called White-fronted Falcon, Duck-hawk, and Australian Hobby. Usually singly or in pairs, frequenting open and lightly timbered country, or mountain ranges. It is more courageous in disposition and stronger on the wing in proportion to its size than any other species of Australian Hawk. Its food consists chiefly of small birds, caught on the wing; also large insects.

Nest.—A loosely made structure of sticks and twigs, lined with soft bark; placed in the topmost branches of a tall tree. Sometimes the deserted nest of another species is used, in which case it is relined with bark.

Eggs.—Three, pale pinkish or buffy-white, almost hidden with reddish-brown markings, mostly thicker and heavier at the larger end. Breeding-season: September to December in eastern Australia.

4. Grey Falcon *Falco hypoleucus* Gould

hy-po-lēūc'-us—Gk, *hypo*, under; Gk, *leucos*, white.

Distribution.—Australia, chiefly the inland areas.

Notes.—Also called Blue Hawk and Smoke Hawk. Usually singly or in pairs, frequenting open and lightly timbered country or mountain ranges. It is a rare species, being less courageous in disposition and slower on the wing than the other Falcons. Its food consists of small birds, reptiles, and small mammals.

Nest.—A large and loosely built structure, composed of sticks, and lined with soft bark or wool. Generally placed in the thin branches near the top of a tall tree.

Eggs.—Two to four, buff or buffy-white, covered with small spots and blotches of rusty-red. Breeding-season: July to October.

5. Peregrine Falcon *Falco peregrinus* Tunstall

per-e-grī'-nus—L., *peregrinus*, wandering.

Distribution.—Australia generally, and Tasmania; also occurs in North America, Europe, Africa, and Asia.

Notes.—Also called Black-cheeked Falcon. Usually singly or in pairs, frequenting alike inland and coastal districts, but showing a decided preference for heavily timbered and rugged mountainous country. It is a bold and fearless bird, and in flight is easily the strongest and swiftest of all Australian Hawks. It preys upon various species of birds, such as Ducks and the smaller Parrots, all of which are killed from a blow with the hind claw delivered while making a lightning-like swoop.

Nest.—Usually in a crevice of a precipitous rocky cliff; sometimes in a hollow limb of a tree.

Eggs.—Two or three, buff, covered all over with reddish-brown markings; some have the markings more numerous about the centre of the eggs. Breeding-season: August to November.

6. Black Falcon *Falco subniger* Gray
sub-nī'-ger—L., *subniger*, somewhat black.

Distribution.—Australia generally.

Notes.—Usually singly or in pairs, frequenting open and lightly timbered country, chiefly of the inland districts. Its flight is remarkably swift and it also possesses wonderful powers of endurance while on the wing. It preys on several species of Quail, the movements of which are followed by this Falcon. Besides Quail its food consists of larger birds inhabiting open areas, which it procures in the same manner as the other Falcons.

Nest.—A platform composed of sticks; generally a deserted nest of a Crow or another species of Hawk is used.

Eggs.—Three or four, buff, closely sprinkled with spots of reddish-brown, and a few purplish-brown markings. Breeding-season: September to December.

7. Brown Hawk *Falco berigora* Vigors and Horsfield
berigora—the native name of this bird.

Distribution.—Australia generally, and Tasmania.

Notes.—Also called Cackling Hawk. Usually singly or in pairs, frequenting open and lightly timbered country. It is generally seen flying over open spaces, or perched upon telegraph posts and wires or fences. It feeds upon mice, beetles, caterpillars, and small birds; it catches birds by pouncing upon them instead of taking them on the wing. In Western Australia this species is more reddish in coloration.

Nest.—A platform composed of sticks and lined with bark; usually placed in a forked branch near the top of a tall tree. Sometimes a deserted nest of a Crow or another species of Hawk is used.

Eggs.—Two to four, buff, generally well covered with reddish-brown blotches; some have a well-defined zone at the larger end, whereas others have only a few dots of reddish-brown. Breeding-season: June to November, occasionally later.

8. Black-shouldered Kite *Elanus axillaris* Latham

Ēl'-ăn-us—Gk, *elanos*, kite: *ax-ill-ā'-ris*—L., *axillaris*, shouldered.

Distribution.—Australia generally.

Notes.—Usually singly or in pairs, frequenting open and lightly timbered country in coastal areas. It appears to be migratory in habits, generally arriving in the south and south-eastern districts during May, departing about November. It is frequently seen in the neighbourhood of farms, either flying over paddocks and crops or else perched on fences.

stumps, or dead trees. Food: mice, lizards, grasshoppers, and other large insects.

Nest.—A platform composed of sticks and lined with leaves; often a deserted nest of a Crow or Magpie is used.

Eggs.—Usually three, whitish, coarsely blotched with reddish-brown markings; some eggs have the markings confined to the larger end, in others they are evenly distributed. Breeding-season: June to November.

9. Letter-winged Kite *Elanus scriptus* Gould

scrip'-tus—L., *scriptus*, written.

Distribution.—Southern and western Queensland, New South Wales, Victoria, South Australia, and central Australia.

Notes.—Usually singly or in pairs, occasionally in flocks, frequenting open and lightly timbered country of the inland areas. It is similar in habits and economy to the Black-shouldered Kite. In central and western Queensland this species congregates in flocks to feed on native rats, irruptions of which occur periodically.

Nest.—A platform composed of fine sticks and lined with leaves and fur.

Eggs.—Three or four, bluish-white, densely blotched with brown and blood red markings, sometimes about the larger end only. Breeding-season: August to November.

10. Grey Goshawk *Astur novæ-hollandiæ* Gmelin

As'-tur—L., *astur*, goshawk: *novæ-hollandiæ*—of New Holland.

Distribution.—Northern, eastern, and southern Australia, and Tasmania; also occurs in New Guinea.

Notes.—Usually singly or in pairs, frequenting chiefly the thickly timbered coastal districts and inland forest country. It attacks small birds and also feeds on large insects such as grasshoppers, cicadas, and beetles. There are two forms of this species, a white and a grey, which have been known to mate.

Nest.—A large structure, composed of sticks, and lined with leaves; generally placed among the topmost branches of a tall tree.

Eggs.—Usually two, faint bluish-white; some eggs have a few brown markings about the larger end. Breeding-season: August to December.

11. Goshawk *Astur fasciatus* Vigors and Horsfield

fas'-ci-ā'-tus—L., *fasciatus*, banded.

Distribution.—Australia generally, and Tasmania; also occurs in Flores, Timor to New Guinea, and New Caledonia.

Notes.—Also called Chicken-hawk. Usually singly or in pairs, frequenting heavily timbered districts, the margins of watercourses, and scrub-lands. It is a wary species, dreaded by all the smaller birds; procures its food more by stealth than by chase. The food of this species

consists of birds and their young. The female is considerably larger than the male.

Nest.—A small, flat structure, composed of sticks, and lined with leaves. Placed among the topmost branches or on a horizontal fork of a tree; in the interior districts it selects low trees, but resorts to taller ones in the coastal areas.

Eggs.—Two to four, bluish-white, sometimes spotted and blotched with reddish-brown or lavender markings. Breeding-season: September to January.

12. Red Goshawk *Erythrotriorchis radiatus* Latham

E-ryth'-ro-tri-orch'-is—Gk, *erythros*, red; Gk, *triorchus*, bird of prey: *rad-i-ā'-tus*—L., *radiatus*, barred.

Distribution.—Northern and eastern Australia, from Kimberley (north-western Australia) to New South Wales.

Notes.—Also called Rufous-bellied Buzzard. It is a rare species, usually seen singly or in pairs, frequenting the margins of swamps and belts of timber bordering open country. Food: birds, reptiles, and small mammals.

Nest.—A large structure, composed of sticks, and lined with leaves. Placed among the branches of a tall tree.

Eggs.—Two, bluish-white, occasionally faintly smeared with pale brown or lavender markings. Breeding-season: August to November.

13. Spotted Harrier *Circus assimilis* Jardine and Selby

Cir'-cus—Gk, *circos*, hawk: *as-sim'-i-lis*—L., *assimilis*, similar.

Distribution.—Australia generally, and Tasmania; also occurs from the Celebes to New Guinea.

Notes.—Also called Spotted Swamp-hawk and Jardine's Harrier. Usually singly or in pairs, frequenting open country generally. It is mostly observed flying slowly above open plains, swamps, and cultivated lands; procures its food both on the wing and on the ground. Food: birds, reptiles, and small mammals.

Nest.—A loosely constructed platform, composed of sticks, and lined with leaves; usually well concealed in a bushy tree.

Eggs.—Usually three, sometimes four, bluish-white, without gloss, the inside of the shell green. Breeding-season: August to October.

14. Swamp-harrier *Circus approximans* Peale

ap-prox'-i-mans—L., *approximans*, approaching.

Distribution.—Australia generally, and Tasmania; also occurs in New Caledonia, Lord Howe Island, Norfolk Island, New Zealand, and Fiji.

Notes.—Also called Gould's Harrier, Allied Harrier, Swamp-hawk, Wheat-hawk, and Kahu. Usually singly or in pairs, frequenting swamps,

reed-beds, and cultivated lands. It is exceptionally bold and is mostly observed flying slowly over, or just clear of, the tops of the reeds and crops. Food: birds (chiefly waterfowl) and small mammals.

Nest.—A bulky platform, composed of sticks, reeds, weeds, and long grasses. Placed on the ground among long rushes growing in a swamp or in a standing crop.

Eggs.—Three to five, bluish-white, without gloss. Breeding-season: September to January.

PLATE XXX

DIURNAL BIRDS OF PREY

1. Crested Hawk *Bazu subcristata* Gould

Baz'-a—N.L., *baza*, hawk: *sub-cris-tā'-ta*—*sub* as prefix, often = slightly; L., *cristatus*, crested.

Distribution.—Northern and eastern Australia.

Notes.—Usually singly or in pairs, frequenting the margins of scrubs and belts of timber bordering rivers and plains. It is a harmless, inoffensive species, feeding chiefly on insects and their larvæ, or occasionally on dead animals. When in flight it has a peculiar habit of "tumbling," uttering the while a clear whistling cry unlike that of any other Australian species of Hawk.

Nest.—A slightly cupped structure, composed of sticks and twigs; lined with leaves. Generally placed on a thin horizontal branch, and supported by a few upright leafy twigs; built at heights up to 60 feet from the ground.

Eggs.—Three or four, uniform faint bluish-white, unless nest-stained. Breeding-season: October to December.

2. Black-breasted Buzzard *Hamirostra melanosterna* Gould

Hām-i-ros'-tra—L., *hamus*, hook; L., *rostrum*, bill: *mel'-an-o-ster'-na*—Gk, *melas* (*melanos*), black; Gk, *sternon*, breast.

Distribution.—New South Wales, Queensland, Northern Territory, north-western Australia, and South Australia.

Notes.—Usually singly or in pairs, frequenting open country, and nesting in belts of timber growing on plains or along watercourses. It is generally seen soaring high in the air, much after the manner of the Wedge-tailed Eagle. Except when visiting its nest, it seldom frequents trees, but generally rests on the ground. There is considerable variation in the plumage coloration of this species; some birds have little, or no, black on the breast. The female is larger and more conspicuously coloured than the male. Food: reptiles (chiefly lizards) and animals (mostly rabbits); it has the singular habit of robbing the nests of Emus and Bustards, and breaking the eggs with a stone grasped in its talons.

Nest.—A large, flat structure, composed of sticks; lined with leaves. Usually placed on a horizontal fork of a tree.

Eggs.—Usually two, white to buff, boldly blotched with reddish-purple and lavender markings. Breeding-season: September to December.

3. Osprey *Pandion haliaetus* Linné

Pan-di'-on—a mythical King of Athens, father of *Procne* (*progne*, swallow) and *Philomela* (nightingale); he was changed into an osprey: *hal-i-ā'-et-us*—Gk, *hals*, sea; Gk, *atos*, eagle.

Distribution.—Australia and Tasmania (cosmopolitan, except southern South America and the Pacific Islands).

Notes.—Also called White-headed Osprey and Fish-hawk. Usually singly or in pairs, frequenting the borders of rivers, lakes, inlets of the sea, and small islands lying off the coast. Its food consists almost entirely of living fish, caught by plunging from above and grasping them with its talons.

Nest.—A large and bulky structure, composed of sticks; lined with seaweed and occasionally with palm-leaves. Generally placed on a rock overlooking the sea, but sometimes in trees.

Eggs.—Two or three, rarely four, buff, heavily blotched at the larger end with large reddish-purple markings, the remainder of the surface being sparingly spotted with lavender and reddish-brown markings. Breeding-season: May to September.

4. Fork-tailed Kite *Milvus migrans* Boddaert

Mil'-vus—L., *milvus*, kite: *mī'-grans*—L., *migrans*, wandering.

Distribution.—Australia generally; also occurs in Europe, north-western Africa, and Asia to the Malay Archipelago.

Notes.—Also called Black Kite and Allied Kite. Usually in pairs or flocks, frequenting the inland districts chiefly. It is a common species about homesteads and camps, and is a well-known scavenger. Its food consists of small mammals, reptiles, and grasshoppers; also offal and garbage.

Nest.—A small, flat, compact structure, composed of sticks; lined with wool or fur. Generally placed in the main fork of a tree or near the end of a horizontal branch, at heights up to 30 feet or more from the ground. Old nests are often relined and used year after year.

Eggs.—Two or three, dull white, more or less marked with spots, blotches, short wavy streaks, or hair-like lines of umber or reddish-brown. Some have the markings chiefly around the larger end, others have paler or clouded markings. Breeding-season: September to January (south); May to July (north).

5. Square-tailed Kite *Lophoictinia isura* Gould

Loph'-o-ic-tin'-i-a—Gk, *lophos*, crest; Gk, *ictinos*, kite: *īs-ūr'-a*—Gk, *isos*, equal, square; Gk, *ura* (*oura*), tail.

Distribution.—Australia generally, though rare in southern Australia.

Notes.—Usually in pairs or flocks, frequenting alike the coastal districts and the inland plains. It shows a marked preference for the smaller watercourses, where it breeds in the adjoining belts of timber. Its food consists mostly of birds, usually young ones taken from nests.

Nest.—A large structure, composed of sticks, and lined with leaves; generally placed in a tree at various heights from the ground. Old nests of other species of Hawks are also used.

Eggs.—Two or three, white or buffy-white, boldly spotted with reddish-brown and lavender markings. Breeding-season: August to November.

6. Red-backed Sea Eagle *Haliastur indus* Boddaert

Hal-i-as'-tur—Gk, *hals*, sea; L., *astur*, goshawk: *indus*—Indian.

Distribution.—Northern Australia and eastern Australia to as far south as the Hunter River (New South Wales); also occurs in India, Burma to the Philippine Islands, New Guinea, and the Solomon Islands.

Notes.—Also called White-headed Sea Eagle, Rufous-backed Sea Eagle, Salmon-hawk, and Rufous-backed Fish-hawk. Usually singly or in pairs, frequenting inlets and estuaries and islands lying off the coast, but particularly mangrove swamps. Its food consists chiefly of fish, crabs, sea-snakes, and cuttle-fish. Its call-note is a curiously modulated "Pēē-ah-h-h," the last syllable rather drawn out and uttered in a tremulous manner.

Nest.—A large structure, composed of twigs and sticks; lined with fine bark, grass, or leaves, and sometimes with lichen; occasionally decorated on the sides with streamers of bleached seaweed. Generally placed near the top of a large mangrove tree or a tall tree growing on an island.

Eggs.—Usually two, dull white or bluish-white, sparingly marked, but more so at the larger end, with spots or blotches or with fine streaks and wavy lines of chestnut or brown. Breeding-season: April or May to September (north); August to October (east).

7. Whistling Eagle *Haliastur sphenurus* Vieillot

sphēn-ūr'-us—Gk, *sphen*, wedge; Gk, *ura* (*oura*), tail.

Distribution.—Australia generally; also occurs in New Guinea and New Caledonia.

Notes.—Also called Whistling Hawk. Usually in pairs, frequenting alike coastal and inland districts. Its flight is buoyant and easy; this species often soars to a great height, uttering a shrill whistling cry audible at a distance of half a mile or more. In the coastal districts it is a great scavenger, feeding upon dead fish and offal left by the tides. It also feeds on small mammals, birds, lizards, carrion, and the larvæ of insects; in many districts rabbits form the chief item of its diet.

Nest.—A large, rather flat structure, composed of sticks, and lined with leaves. Generally placed on a horizontal branch of a tall tree.

Eggs.—Two or three, white or bluish-white, either sparsely spotted with lavender markings or with large blotches of reddish-brown. Breeding-season: practically throughout the year.



DIURNAL BIRDS OF PREY

8. Little Eagle *Hieraaëtus morphnoides* Gould

Hî'-er-a-ä'-ët-us—Gk, *hierax*, *acos*, hawk; Gk, *aëtos*, eagle: *morph-noid'-ës*—Gk, *morphnos*, kind of eagle; *-oides* from Gk, *eidos*, form = like.

Distribution.—Australia (except the south-western portion); also occurs in New Guinea.

Notes.—Usually in pairs, frequenting chiefly the inland districts where it shows a preference for country intersected by creeks. It is a quiet and inoffensive species, in some districts subsisting almost entirely on rabbits. It also feeds on small mammals, reptiles, carrion, and young birds. Its call-note is a plaintive piping whistle.

Nest.—A large structure, composed of sticks, and lined with leaves. Generally placed on a slender forked limb at the top of a tree.

Eggs.—One, sometimes two, bluish-white, sparsely and at times faintly marked with reddish-brown spots. Breeding-season: August to November.

9. Wedge-tailed Eagle *Uroaëtus audax* Latham

Ūr-o-ä'-ët-us—Gk, *ura* (*oura*), tail; Gk, *aëtos*, eagle: *āū'-dax*—L., *audax*, bold.

Distribution.—Australia generally, and Tasmania.

Notes.—Also called Eagle-hawk—a ridiculous name considering that it is the largest species of Eagle in the world. It frequents alike timbered country and plains, and is generally observed singly or in pairs soaring high in the air as if on motionless wings, but nevertheless travelling with great rapidity. When in pursuit of its prey the speed of its flight is astounding, for it darts down as swift as an arrow and rarely misses its intended victim. It has a bad reputation as a lamb-killer, though unquestionably it does more good than harm, for it destroys many thousands of rabbits, to an occasional lamb. The food of the species consists chiefly of rabbits and small marsupials, also carrion. The average wing-spread is about 7 feet.

Nest.—A very large structure, composed of sticks, and lined with soft bark and leaves. Placed in a very large tree and mostly in one that is isolated or so situated that the sitting bird has an uninterrupted view of the surrounding country. A nest often measures 8 feet across and sometimes is almost as deep.

Eggs.—Usually two, occasionally three, white or light buff, often covered all over with spots or blotches of lavender or dull red, the markings generally being more noticeable at the larger end. Breeding-season: usually July to September.

10. White-breasted Sea Eagle *Haliaëetus leucogaster* Gmelin

Hal-i-æ-ët-us—Gk, *hals*, sea; Gk, *aëtos*, eagle: *lēūc-o-gas'-ter*—Gk, *leucos*, white; Gk, *gaster*, belly.

Distribution.—Australia and Tasmania; also occurs in India, southern China, and Oceania.

Notes.—Also called White-bellied Sea Eagle and White-bellied Fishhawk. Usually in pairs, frequenting the salt-water rivers, inlets, islands off the coast, and occasionally inland rivers and lakes. It is generally observed flying lazily above the foreshores, mud-flats, or sand-spits, searching for offal and carrion left by the tides. It is a most useful scavenger and rarely destroys domestic animals. The food of this species consists of various mammals, birds, tortoises, sea-snakes, fish, eels, and the larger crustaceans. It has a peculiar cackling cry.

Nest.—A large structure, composed of sticks, and lined with leaves. Generally placed in a tall tree; sometimes on a projecting ledge of rock. Nests are used for years in succession.

Eggs.—Usually two, white and slightly glossy, green inside, unless nest-stained. Breeding-season: generally June to October.

BIRDS OF THE LAKES, STREAMS, AND SWAMPS



BIRDS OF THE LAKES, STREAMS AND SWAMPS

PLATE XXXI

BIRDS OF THE LAKES, STREAMS, AND SWAMPS

1. Little Kingfisher *Alcyone pusilla* Temminck

Al'-cŷ-ō-nē—a daughter of Æolus, the wind god, who, when her husband Cēyx was drowned, threw herself into the sea and both were changed by the gods into kingfishers: *pu-sil'-la*—L., *pusillus*, very small.

Distribution.—Northern Territory and northern Queensland; also occurs in the Molucca Islands, New Guinea, and Solomon Islands.

Notes.—Usually singly or in pairs, frequenting streams in the densest parts of scrubs, but chiefly small creeks running through mangrove swamps. Its note is a shrill, piping cry, uttered mostly while on the wing. Food: small fishes.

Nest.—In a hole in a bank of a creek; sometimes in an old stump.

Eggs.—Usually five, white, rounded and glossy. Breeding-season: February (Cape York).

2. Azure Kingfisher *Alcyone azurea* Latham

az-ūr'-e-a—L., *azureus*, blue.

Distribution.—Northern, eastern, and southern Australia, and Tasmania; also occurs in the Molucca Islands and New Guinea.

Notes.—Also called Blue Kingfisher, Water Kingfisher, and River Kingfisher. Usually singly or in pairs, frequenting fresh and salt-water streams. Its flight is swift and it generally keeps close to the surface of the water as it flies up or down a stream. While in flight it utters a shrill, piercing call-note. Food: small fishes, crustaceans, and insects.

Nest.—In a hole in a bank of a stream.

Eggs.—Five or six, white, rounded and glossy. Breeding-season: October to December.

3. Spotted Crake *Porzana fluminea* Gould

Por-zā'-na—N.L., *porzana*, crake: *flūm-in'-e-a*—L., *flumineus*, belonging to rivers.

Distribution.—Eastern, southern, and south-western Australia, and Tasmania.

Notes.—Also called Water-crake. Usually singly or in pairs, frequenting marshy localities thickly overgrown with rank herbage or the reed-lined banks of swamps and streams. It is extremely shy and wary, keeping to the seclusion of the reeds and herbage. When startled, it disappears from sight with amazing quickness, and if driven from its retreat, takes to the water where it soon evades pursuit by swimming and diving. Food: aquatic insects and the green shoots of aquatic plants.

Nest.—An open structure, composed of coarse grasses; generally placed at the base of a tussock of grass or reeds growing in or surrounded by water.

Eggs.—Four or five, pale stone-brown, tinged with olive, and freckled, spotted, and blotched with different shades of purplish-brown and grey markings. Breeding-season: August to January.

4. Marsh Crake *Porzana pusilla* Pallas

pu-sil'-la—L., *pusillus*, very small.

Distribution.—Australia (coastal) and Tasmania; also occurs in the eastern hemisphere, Europe, Africa to Japan and New Guinea, and New Zealand.

Notes.—Also called Little Crake. Usually singly or in pairs, frequenting swamps and reed or mangrove-lined streams and inlets. It is timid and wary, rarely leaving the seclusion of its haunts, and is a difficult species to observe. Although it swims and dives expertly, it prefers to keep to the shallows, seeking its food while wading. Its call-note is a sharp "Krek" or "Crake," usually uttered at dusk or at daybreak. Food: aquatic insects, small freshwater molluscs, and the green shoots of aquatic plants.

Nest.—A slightly concave structure, composed of dried coarse grasses and aquatic plants; generally well concealed, and built in a clump of reeds or a low bush growing in water.

Eggs.—Five or six, varying from pale brown tinged with olive to dark olive-brown; some closely resemble pebbles, others are slightly covered with streaks of a darker shade of the ground colour. Breeding-season: October to January.

5. Spotless Crake *Porzana plumbea* Gray

plum'-be-a—L., *plumbeus*, leaden.

Distribution.—Eastern and southern Australia, and Tasmania; also occurs in the Malay Archipelago, Philippine Islands to Tonga, New Zealand, and Chatham Islands.

Notes.—Also called Leaden Crake, Tabuan Crake, Swamp-rail, Little Swamp-hen, Pukeko, and Putoto. Usually singly or in pairs, frequenting swamps and the reed-lined margins of streams. It is similar in habits and economy to the Spotted and Marsh Crakes.

Nest.—An open structure, composed of dried, coarse grass-stalks; generally built low down in a tussock of grass.

Eggs.—Four or five, sometimes as many as seven, pale creamy-brown, thickly covered with faint markings of light chestnut-brown. Breeding-season: September or October to January.

6. Lewin Water-rail *Rallus pectoralis* Temminck

Rall'-us—N.L., *rallus*, rail: *pec-tor-ā'-us*—L., *pectoralis*, breasted.

Distribution.—Eastern, southern, and south-western Australia (coastal), and Tasmania; also occurs in New Guinea.

Notes.—Also called Slate-breasted Rail, Short-toed Rail, and Pectoral Rail. Usually singly or in pairs, frequenting swamps and the reed-lined margins of streams. It is exceedingly shy and retiring in habits, and difficult of observation. If flushed, it rarely flies far, but seeks refuge among the tall grasses. When in flight its long legs hang down, and, although not web-footed, it swims with great facility and dives if closely pursued. It utters an alarm note, resembling "Creek" or "Crick," when startled. Food: worms, freshwater snails, and insects of various kinds.

Nest.—A shallow, saucer-shaped structure, composed of coarse plant-stalks and grass-stems, and well concealed among tall rushes, grass, or aquatic plants.

Eggs.—Three to five, occasionally more, dull white or warm creamy-white, covered with freckles, streaks, spots, and blotches of purplish-brown, chestnut-brown, and violet-grey markings. Breeding-season: August to December.

7. Red-necked Rail *Rallina tricolor* Gray

Rall-i'-na—N.L., *rallina*, rail: *tri-col-or*—L., *tricolor*, three-coloured.

Distribution.—Northern Queensland (coastal); also occurs in the Aru Islands and New Guinea.

Notes.—Also called Tricoloured Rail. Usually singly or in pairs, frequenting the dense tropical scrubs bordering creeks or on the sides of stony ridges. It appears to be migratory, arriving in northern Australia at the beginning of the wet season. Generally it is shy and difficult to observe. Its call is a loud shriek, many times repeated, resembling "Kare, kare, kare," and another short sharp note like "Tock, tock, tock." Food: insects and freshwater animals of various kinds.

Nest.—A hole scooped in the ground, in which a few dead leaves are placed; generally situated at the foot of a tree.

Eggs.—Four or five, pure white. Breeding-season: January to April.

8. Banded Landrail *Hypotaenidia philippensis* Linné

Hy'-po-tæ-nid'-i-a—Gk, *hypo*, under; Gk, *tainidion*, small band: *philippensis*—of the Philippine Islands.

Distribution.—Australia generally, and Tasmania; also occurs in the Philippine Islands to New Guinea, New Zealand, and the Pacific Islands.

Notes.—Also called Buff-banded Landrail, Landrail, Painted Rail, Pectoral Rail, and Corn-crake. Usually singly or in pairs, frequenting scrub and rank herbage in swampy localities, also the margins of streams and cultivation paddocks. It is shy and wary, being difficult to observe; it rarely takes to the wing, evading its enemies by running. When startled, it utters an alarm note, "Krek," which is instantly answered by other birds in the vicinity. Food: insects, seeds, small freshwater molluscs, and the green shoots of various plants.

Nest.—A flat structure, composed of dried grasses and herbage, and generally placed in or near a tussock of grass or among herbage.

Eggs.—Five or six, sometimes as many as eleven, creamy-buff or a faint buffy-white, spotted and blotched with brownish-red, purplish-red, and pale violet-grey markings. Breeding-season: October to January.

9. Bush-hen *Amaurornis ruficrissus* Gould

Am-āūr'-orn'-is—Gk, *amauros*, dark; Gk, *ornis*, bird: *rū-fi-criss'-us*—L., *rufus*, red; L., *crissum*, vent feathers.

Distribution.—Northern Territory and northern Queensland.

Notes.—Usually singly or in pairs, frequenting swampy areas, chiefly of the coastal districts. It is similar in habits and economy to the other species of Rails.

Nest.—An open structure, composed of coarse grass and other herbage; generally well concealed, and built in a tussock of grass.

Eggs.—Four to six, white or faint creamy-white, dotted, spotted, and finely blotched with pale purplish-red and purplish-grey markings, intermingled with underlying markings of violet-grey. Breeding-season: October to March.

10. Australian Pratincole *Stiltia isabella* Vieillot

Stilt'-i-a—N.L., *stiltia*, from English stilt: *is-a-bell-ā'*—N.L., *isabella*, from the colour isabelline.

Distribution.—Australia (except Western Australia south of the Fitzroy River); also occurs in Borneo, Java to New Guinea.

Notes.—Also called Swallow Plover. Usually in flocks, frequenting the dry inland plains. It is a migrant, generally arriving during September or October, departing in February or March. Plains and bare areas, entirely destitute of vegetation, are its chosen habitat. It runs over the ground with great rapidity; its flight, although appearing clumsy, is nevertheless light and buoyant, and is characterized by erratic zigzag motions. Food: insects, captured both on the ground and on the wing.

Nest.—A bare space on the ground.

Eggs.—Two, pale stone-colour, covered all over (sometimes very heavily) with irregular-shaped markings of dark brown and underlying ones of grey. Breeding-season: September to February.

11. Australian Dotterel *Peltohyas australis* Gould

Pel-to-hy'-as—Gk, *pelte*, shield; Gk, *hyas*, a plover: *australis*—southern (Australian).

Distribution.—Australia (except the northern, eastern, and south-eastern coastal districts).

Notes.—Usually in pairs or small flocks, frequenting plains and the samphires growing on the margins of lakes and streams. It appears to be nomadic in habits, although in many localities it is found throughout the year. If approached carefully it is not timid, but when startled, flies a considerable distance before alighting again. Its call-note resembles

"Quick" uttered in a slightly metallic tone, and it also has another low note like "Kr-root." Food: insects of various kinds and seeds.

Nest.—A depression in the ground.

Eggs.—Usually three, rich cream or buff, sparingly sprinkled all over with irregular spots and some elongated crooked markings of chocolate-black with a few minute dots and dashes of a lighter tint. When the bird has occasion to leave the nest it covers the eggs with debris. Breeding-season: April, May, August, September, and October.

12. Lotus-bird *Irediparra gallinacea* Temminck

I-red-i-parr'-a—Tom Iredale, ornithologist, Australian Museum, Sydney—L., *parra*, kind of bird: *gal-lin-ā'-ce-a*—L., *gallinaceus*, like a fowl.

Distribution.—Northern Australia (coastal), from Derby (north-western Australia) to the Hawkesbury River (New South Wales); also occurs in Borneo, Celebes to New Guinea.

Notes.—Also called Comb-crested Jacana, Comb-crested Parra, Lily Trotter, and Christ-bird. Usually in pairs or small flocks of five or six, frequenting swamps, lagoons, and streams, chiefly those covered with aquatic vegetation. It is generally observed running or skipping over the broad leaves of the waterlilies and similar plants. Habitually shy and wary. When disturbed, it utters a shrill trumpet-like alarm note and flies to another part of the swamp or stream. Its flight is weak and laboured, its long legs being held out horizontally to their full extent. Food: aquatic animals and plants.

Nest.—A flat structure, composed of sedge, grass, and aquatic plants, and built upon bunches of weeds or grass growing in the water. It is generally placed near the edge of a swamp or stream, and is so flat that the eggs are almost level with the surface of the water, sometimes partly under water when the bird sits on the nest.

Eggs.—Four, pale brown, pale yellowish-brown, or brownish-red, covered with well-defined black lines, criss-crossing the surface in all directions. The surface is smooth, appearing as if varnished or highly polished. Breeding-season: September to January.

13. Australian Snipe *Gallinago hardwicki* Gray

Gal-lin-ā'-go—L., *gallinago*, feminine form from *gallus*, a game-bird: *hardwicki*—General Hardwicke, associated with J. E. Gray in Indian Zoology, died 1835.

Distribution.—Japan, migrating southwards to eastern and southern Australia, and Tasmania; accidental to New Zealand.

Notes.—Also called Common Snipe, Japanese Snipe, Jack Snipe, Latham's Snipe, Long-bill, and Bleater. Usually in flocks, arriving in Australia during September, departing in March or April. It frequents river-flats, swamps, and marshes, and is a timid and wary species. Sportsmen give it first place among game-birds, and although plentiful within settled districts, very little is known of its habits while in Australia. Food: insects and worms.

Nest.—A depression in the ground.

Eggs.—Three or four, pale stone colour, blotched all over, but more so on the larger end, with dark purplish-red spots and underlying markings of lavender. Breeding-season: May and June (Japan).

14. Pin-tailed Snipe *Gallinago megala* Swinhoe

meg'-al-ā'—Gk, *megas* (*megalos*), large.

Distribution.—Eastern Siberia, migrating southwards to the Malay Archipelago to New Guinea and northern Australia.

Notes.—Also called Large Pin-tailed Snipe and Little Australian Snipe. Usually in flocks, arriving in Australia during September or October, departing in March or April. It frequents moist, marshy country and swamps, and is similar in habits to the Australian Snipe.

Nest.—A depression in the ground, lined with grass.

Eggs.—Four, creamy-white or pale ochre, spotted with pale reddish-brown on the smaller end and dark reddish-brown on the larger end, with dots and stripes on the rest of the surface. Breeding-season: June.

15. Painted Snipe *Rostratula australis* Gould

Ros-trā'-tu-la—L., *rostratulus*, diminutive of *rostratus*, beaked: *australis*—southern (Australian).

Distribution.—Australia (except central Australia) and Tasmania.

Notes.—Also called Australian Painted Snipe and Australian Rhynchæa. Usually in pairs, frequenting the margins of swamps and streams, more especially those covered with low and stunted vegetation. It is partly nomadic, generally arriving in New South Wales during September or October, remaining to breed, and departing again in February or March. Occasionally odd pairs remain in a locality throughout the year. When flushed, it flies close to the ground, making for the nearest cover, and is then exceedingly difficult to flush again. Food: insects and worms. The female is larger and brighter in colour than the male, especially on the wings, and also differs in having the hind-neck chestnut.

Nest.—A shallow depression in the ground, lined with grass or leaves, and frequently sheltered by a low bush or tuft of grass.

Eggs.—Four, creamy-white or dull yellowish-stone, covered with short thick streaks and irregular-shaped spots and blotches of black, with which are intermingled a few spots of brown, brownish-black, and underlying markings of grey. Breeding-season: October to January.

16. Little Grebe *Podiceps ruficollis* Vroeg

Pō'-di-ceps—an abbreviation of *Podicipes*—L., *podex* (*podicis*), rump; L., *pes*, foot: *rū-fi-coll'-is*—L., *rufus*, red, L., *collum*, neck.

Distribution.—Eastern hemisphere, Australia, Tasmania, and New Caledonia.

Notes.—Also called Black-throated Grebe, Red-necked Grebe, Dabchick, and White-bellied Diver. Usually in pairs or small parties, frequenting still waters of lakes, swampy lagoons, and dams. It is generally

seen in clear open water far out from the shore, and rarely on the land. When disturbed it suddenly disappears under the water, to reappear on the surface some distance away. Food: aquatic animals and plants.

Nest.—A raft-like structure, composed of reeds and other aquatic plants, generally only a few inches above the surface of the water, and attached to reeds, twigs of a fallen branch of a tree, or other debris.

Eggs.—Four to seven, white, soon becoming stained due to a thick coating of lime. Breeding-season: October to March or April.

17. Hoary-headed Grebe *Podiceps poliocephalus* Jardine and Selby
pol-i-o-ceph'-al-us—Gk, *polios*, grey; Gk, *cephale*, head.

Distribution.—Australia generally, and Tasmania.

Notes.—Also called Dabchick and Tom Pudding. Usually in pairs or small parties, frequenting lakes and streams, salt-water inlets, and the estuaries of rivers. Similar in habits and economy to the Little Grebe. They are often seen together.

Nest.—Similar to that of the Little Grebe.

Eggs.—Like those of the Little Grebe. Breeding-season: October to January or February.

18. Wood-sandpiper *Tringa glareola* Linné

Tring'-a—N.L., from Gk, *tryngas*, a species of bird: *glār-e-ōl'-a*—L., *glareolus*, gravelly.

Distribution.—Northern Europe and northern Asia, migrating southwards to South Africa, India, Malaysia, and Australia.

Notes.—A rare visitor to Australia during the spring and summer months. It frequents marshy areas, swims well, and also perches on trees. Food: shell-fish, grasshoppers, and other insects.

Nest.—A depression in the ground.

Eggs.—Four, bluish, covered with large spots and blotches of dark purplish-red markings, more so at the larger end, and underlying spots of lavender. Breeding-season: May and June (Siberia).

19. Marsh-sandpiper *Tringa stagnatilis* Bechstein

stag-nā'-til-is—L., *stagnatilis*, of marshes.

Distribution.—Central Europe and northern Asia, migrating southwards to South Africa, India, Malaysia, to northern and eastern Australia.

Notes.—Also called Little Greenshank. A rare visitor to Australia during the spring and summer months, where it frequents salt marshes. Nothing is recorded of its habits while in Australia.

Nest.—A depression in the ground among grass.

Eggs.—Four, very pale yellow, sometimes shading to a greenish tint, covered all over (but more so on the larger end, where they often form an irregular zone) with spots of deep brown or coffee-brown, and underlying markings of grey. Breeding-season: June (Siberia).

20. White-headed Stilt *Himantopus leucocephalus* Gould

Hi-mant'-o-pus—Gk, *himantopous*, water-bird; *lēūc-o-ceph'-al-us*—Gk, *leucos*, white; Gk, *cephale*, head.

Distribution.—Australia and Tasmania; also occurs in Sumbawa, Timor, the Moluccas, New Guinea, Lord Howe Island, and New Zealand.

Notes.—Also called Pied Stilt, Longshanks, Stilt-bird, and Long-legged Plover. Usually in pairs or flocks, frequenting shallow lakes, swamps, and tidal flats. It often associates with the Red-necked Avocet and other Waders. The call-note of this species is not unlike the bark of a small dog. Food: aquatic animals and plants.

Nest.—Either a slight hollow in the mud at the water's edge, or a compact structure, composed of dried aquatic plants, built in a swamp. It usually breeds in colonies, but the nests are scattered along the margins of the lakes or swamps.

Eggs.—Four, greenish-stone, covered with irregular-shaped spots and blotches of dark purplish-brown, and smaller underlying markings of lavender. Breeding-season: August to December.

21. Banded Stilt *Cladorhynchus leucocephalus* Vieillot

Clad-o-rhynch'-us—Gk, *clados*, curving branch; Gk, *rhynchos*, beak; *lēūc-o-ceph'-al-us*—Gk, *leucos*, white; Gk, *cephale*, head.

Distribution.—Australia and Tasmania; accidental to New Zealand.

Notes.—Also called Rottnest Snipe. Usually in pairs or flocks, frequenting lakes, swamps, the margins of streams, and tidal flats. It is very similar in habits and economy to the White-headed Stilt, except that it seems to prefer salt lakes and salt-water to fresh.

Nest.—A slight depression in the ground. Like Terns, it breeds in compact colonies. The two recorded breeding-areas are Lake Grace (Western Australia) and Lake Callabonna (South Australia).

Eggs.—Two to four, dull white or faintly tinged with cream, covered with a tangle of irregular, twisted, and interlacing lines of black or brown, and underlying markings of grey; some eggs are marked with blotches and large spots, while others are almost unmarked. Breeding-season: July and December are the only months recorded.

22. Red-necked Avocet *Recurvirostra novæ-hollandiæ* Vieillot

Re-curv'-i-ros'-tra—L., *recurvus*, turned back; L., *rostrum*, bill; *novæ-hollandiæ*—of New Holland.

Distribution.—Australia generally, and Tasmania; accidental to New Zealand.

Notes.—Also called Cobbler, Cobbler's Awl, Painted Lady, Scooper, Trumpeter, and Yelper. Usually in pairs or flocks, frequenting lakes, streams, and swamps. It is generally shy and quiet, but becomes very noisy if its nest is approached. Besides its call-note, which is somewhat

like the bark of a dog, it has a peculiar squeaky trumpet-like whistle generally uttered during flight. Food: aquatic animals and plants.

Nest.—A depression in the ground, usually among herbage close to the water's edge. Some nests have a few twigs, pebbles, or pieces of hardened mud placed round the edge to keep the eggs in position.

Eggs.—Four, light yellowish-stone to creamy-brown, over which are distributed spots, freckles, and blotches of black, and underlying markings of inky-grey. Breeding-season: August to December.

23. Masked Plover *Lobibyx miles* Boddaert

Lob-t'-byx—Gk, *lobos*, lobe; Gk, *ibyx*, a variant of *ibis*, a bird: *mi'-lēs*—L., *miles*, soldier.

Distribution.—Northern Australia, from Broome (Western Australia) to Brisbane (Queensland); also occurs in the Molucca Islands, Timor, Aru Islands, and New Guinea.

Notes.—Usually in pairs or flocks, frequenting the margins of swamps, lagoons, and streams. It is nomadic, although odd pairs will remain in a district throughout the year. The call-note of this species resembles "Keerk, keerk, keerk," usually uttered when alarmed or when in flight. Food: insects, small crustaceans, and herbage.

Nest.—A depression in the ground.

Eggs.—Four, greenish-olive or yellowish-stone, covered with freckles, spots, and irregular-shaped markings of olive-brown and blackish-brown and underlying spots of dull slate. Breeding-season: January to April.

24. Spur-winged Plover *Lobibyx novæ-hollandiæ* Stephens

novæ-hollandiæ—of New Holland.

Distribution.—South-eastern Australia (from Cooper's Creek, central Australia, to the Fitzroy River, central Queensland), and Tasmania; accidental to New Zealand.

Notes.—Also called Wattled Plover and Alarm-bird. Usually in pairs or flocks, frequenting the margins of swamps, lagoons, and streams. It is very shy and wary, and when disturbed utters a shrill alarm note, warning its companions as well as other birds in the neighbourhood. The call-note, "Kurra-Carrak," is generally voiced while the bird is in flight, and is mostly heard at dusk or at daybreak. Food: insects, small crustaceans, and herbage.

Nest.—A slight depression in the ground.

Eggs.—Four, light yellowish-olive or brownish-olive, spotted, freckled, and blotched with brownish-black markings and underlying spots of dull grey. Breeding-season: July to January.

25. Banded Plover *Zonifer tricolor* Vieillot

Zon'-i-fer—L., *zona*, band; L., *fero*, I bear: *tri-col-or*—L., *tricolor*, three-coloured.

Distribution.—Australia (except the northern portion) and Tasmania.

Notes.—Also called Black-breasted Plover, Flock Plover, Plain Plover, and Tricoloured Plover. Usually in pairs or flocks, frequenting well-grassed lands in the vicinity of water, as well as plains far from it. It is partly nomadic, its movements from one district to another being influenced by the seasonal conditions. Like the other species of Plovers, it resents any interference with its eggs or young, and employs all manner of wiles to lure the intruder away, or, protesting loudly, will make bold swoops at an observer. Food: insects and their larvae, also seeds of grasses and other plants.

Nest.—A shallow depression scratched in the ground.

Eggs.—Four, light brown, covered with irregular-shaped spots and blotches of brown, blackish-brown, and some underlying markings of grey. Breeding-season: July to November.

26. White-winged Black Tern *Chlidonias leucoptera* Temminck

Chlid-on' i-as—Gk, *chlidon*—ornament: *lēuc-op'-ter-a*—Gk, *leucos*, white; Gk, *pteron*, wing.

Distribution.—Southern and central Europe, across central Asia to China, migrating southwards to Africa, India, Malaysia, to Australia; accidental to North America and New Zealand.

Notes.—Also called Eastern White-winged Tern. This species visits northern Australia during the spring and summer months, where it frequents lakes and swamps. Very little has been recorded of its habits while in Australia. The coloured figure represents an adult in winter plumage; an adult in breeding plumage has the entire head, neck, upper back, breast, flanks, and abdomen glossy black; lower back and rump, greyish-black; upper tail-coverts and tail, pure white.

Nest.—Composed of vegetable debris piled to form a fairly large structure, and placed on water-surrounded clumps of fixed vegetation; occasionally on accumulations of pond material floating on the surface. Breeds in large colonies, often in association with the Whiskered Tern.

Eggs.—Usually three, varying from deep olive or pale chocolate to greenish grey or buff, covered with blotches, dots, or streaks of black or amber, generally forming an irregular belt round the larger end. Breeding-season: May, June, and July (does not breed in Australia).

27. Whiskered Tern *Chlidonias hybrida* Pallas

hy'-brid a—L., *hybrida*, a mongrel.

Distribution.—Australia and Tasmania; also occurs in Europe, Africa, central and southern Asia, and Malaysia.

Notes.—Also called Marsh Tern. Usually in flocks, frequenting chiefly lakes and swamps of the inland districts. It has an easy and extremely graceful flight as it passes over the lakes, every now and then darting down into the water after food, which consists mostly of live fish and aquatic insects and their larvae.

Nest.—Composed of rushes or aquatic plants, forming a flat structure, generally floating upon the surface of the water. Sometimes placed among rushes growing in deep water, some distance from the shore.

Eggs.—Two or three, greenish-buff, blotched all over with blackish-brown and some underlying markings of grey. Breeding-season: October, November, and December.

28. Gull-billed Tern *Gelochelidon nilotica* Gmelin

Gē-lo-chel-i'-don—*gelo*, derivation unknown; *Gk*, *chelidon*, swallow; *nilotica*—from the River Nile.

Distribution.—Australia (except the south-western portion), and Tasmania; also occurs along the Atlantic coast of America, and in Europe, Africa, southern Asia, Malaysia, and New Guinea.

Notes.—Also called Long-legged Tern. Usually in flocks, frequenting both inland lakes and swamps and the seashore. It is generally seen skimming in hawk-like fashion over the swamps, lakes, or surrounding plains, or above salt-water marshes and estuaries. Food: live fish, insects, and small reptiles.

Nest.—A depression in the soil, surrounded by any debris near at hand, collected and added to as incubation proceeds. Breeds in colonies.

Eggs.—Two to four, buffy-white or whitish-brown, sparingly covered with light umber markings, over which are splashes and spots of purplish-red and purplish-grey, and others of a lighter tint, appearing as if beneath the surface of the shell. Breeding-season: October to March (eastern Australia); May (north-western Australia).

29. Roseate Tern *Sterna dougalli* Montagu

Stern'-a—N.L., *sterna*, gull; *dougalli*—Dr MacDougall of Glasgow, 1808.

Distribution.—Central, eastern, and northern America, and Europe, Africa, Australia (except the south-eastern portion), and New Caledonia.

Notes.—Also called Graceful Tern. Usually in flocks, frequenting chiefly the islands off the coast, salt marshes, and often lakes and swamps of inland districts. It is an extremely graceful bird in flight, and its beautiful rose-tinted under-parts, seen only in certain lights, distinguish it from the other species of Terns. Food: chiefly live fish.

Nest.—A slight depression in the sand or on a ridge of dead coral; sometimes partly lined with fine pieces of coral, or shells. Breeds in colonies on islands off the coast, chiefly in tropical latitudes.

Eggs.—Usually two, varying from light yellowish to a faint greyish-stone, uniformly covered with dots, spots, and a few small irregular-shaped blotches of brownish or inky-black with underlying markings of faint bluish or inky-grey. Some eggs are marked by a few large conspicuous blotches with smaller dots of the same hues on the larger end. Breeding-season: September to December or January.

PLATE XXXII

BIRDS OF THE LAKES, STREAMS, AND SWAMPS

1. Black-tailed Water-hen *Tribonyx ventralis* Gould

Trib'-on-yx—Gk, *tri*, three; Gk, *onyx* (*onychos*), claw: *ven-trā'-lis*—L., *ventralis*, bellied.

Distribution.—Australia (except the interior of Western Australia); accidental to New Zealand.

Notes.—Also called Black-tailed Native Hen, Swamp-hen, and Black-tailed Gallinule. Usually in pairs or flocks, frequenting swamps, lakes, or the reed-beds and backwaters of rivers. It is nomadic in habits, often appearing in huge flocks in districts where it has not previously been recorded. During these visitations it does considerable damage to crops and gardens. It is a sprightly bird, flicking its tail as it runs in and out of the reeds, and flying only when hard-pressed. Food: grass and aquatic plants and animals.

Nest.—An open, deep, saucer-shaped structure, composed of plant-stems, dried grasses, or rushes. Generally placed on the ground in a clump of reeds, under a low bush, on a mass of debris, or in similar situations.

Eggs.—Five to nine, varying from a dull light green to pale sage-green, sparsely but evenly dotted and spotted with purplish-brown, intermixed with faint markings of dull violet-grey. Breeding-season: August to December.

2. Tasmanian Water-hen *Tribonyx mortieri* Du Bus

mortieri—Mortier or Dumortier, who seems to have been curator of the Brussels Museum.

Distribution.—Tasmania.

Notes.—Also called Native Hen. Usually in pairs or flocks, frequenting marshes, swamps, and reedy margins of lakes and streams. It is rather shy, disappearing in the rank herbage when disturbed. The call resembles the sound of steel being sharpened; the bird has another note—a loud resonant “Cluck.” Food: aquatic plants and insects, mixed with large quantities of gravel.

Nest.—An open, bulky structure, composed of dry herbage and reed-stalks. Built on the ground and sheltered beneath a clump of rushes or a low bush.



BIRDS OF THE LAKES, STREAMS AND SWAMPS

Eggs.—Five to eight, varying from dull yellowish-stone to light buffy-brown, sparingly and uniformly spotted and blotched with shades of chestnut-brown and faint markings of purplish-brown. Breeding-season: September to December.

3. Dusky Moor-hen *Gallinula tenebrosa* Gould

Gal-lin'-u-la—L., *gallinula*, small fowl: *ten-e-brō'-sa*—L., *tenebrosus*, dark.

Distribution.—Australia (except north-western Australia, Northern Territory, and central Australia); also occurs in New Guinea.

Notes.—Also called Black Moor-hen and Black Gallinule. Usually in pairs or flocks, frequenting swamps and the margins of lakes or streams. It is an active bird, and runs, swims, or dives with equal celerity; occasionally when disturbed it flies with a heavy and laboured flight from one side of a stream or swamp to the other. Food: aquatic plants and insects.

Nest.—An open structure, composed of reed-stems and dried grasses: placed on a broken-down tussock of grass or rushes.

Eggs.—Five to seven, occasionally ten, varying from pale creamy-white to putty colour, covered with dots and irregular-shaped spots and blotches of dull reddish-brown and purplish-brown. Breeding-season: August to December.

4. Chestnut Rail *Eulabeornis castaneoventris* Gould

Eu-lab-e-orn'-is—Gk, *eulabes*, cautious; Gk, *ornis*, bird: *cas-tan'-e-o-ven'-tris*—L., *castaneus*, chestnut; L., *venter*, belly.

Distribution.—Northern Australia, from Kimberley (north-western Australia) to Cape York Peninsula; also occurs in the Aru Islands.

Notes.—Also called Chestnut-breasted Rail. Usually singly or in pairs, frequenting muddy shores and mangroves, where it is not often seen owing to its shyness and wariness. It rarely takes to the wing when alarmed, generally seeking safety by running. Food: insects, molluscs, and crustaceans.

Nest.—A flat, unlined structure, composed of sticks; generally placed on a low slanting branch of a mangrove tree.

Eggs.—Four, pale pinkish-white, sparsely dotted all over with reddish-chestnut; some markings appear as if beneath the surface of the shell. Breeding-season: September to November.

5. Eastern Swamp-hen *Porphyrio melanotus* Temminck

Por-phyr'-i-o—Gk, *porphyrios*, purple: *mel'-an-o'-tus*—Gk, *melas* (*melenos*), black; Gk, *noton*, back.

Distribution.—Australia (except the south-western portion), and Tasmania; also occurs in New Guinea, New Caledonia, Norfolk Island, Lord Howe Island, and New Zealand.

Notes.—Also called Bald Coot, Purple Gallinule, Purple Water-hen, Black-backed Water-hen, Macquarie Hen, Redbill, and Pukeko. Usually

in pairs or flocks, frequenting the reedy margins and flats of rivers, backwaters, and swamps. It also congregates in large flocks and occasionally does considerable damage to crops and gardens. The call-note is loud and shrill and is generally uttered during the night or when the bird is startled. It swims readily; when walking it flicks its tail continually. Food: grass, aquatic plants, and freshwater molluscs. Uses foot to hold food when feeding.

Nest.—An open structure, composed of reeds, rushes, and other plant material; placed on a platform of broken-down reeds or in a tussock of lignum.

Eggs.—Five to seven, varying from pale brown to faint creamy-brown, covered with evenly scattered dots, spots, and small irregular-shaped blotches of dull reddish or purplish-brown, and faint markings of pale slate-grey. Breeding-season: August to December or January.

6. Western Swamp-hen *Porphyrio bellus* Gould

bell'-us—L., *bellus*, beautiful.

Distribution.—South-western Australia.

Notes.—Also called Bald Coot, Azure-breasted Gallinule, and Blue-breasted Swamp-hen. Usually in pairs or flocks, frequenting swamps and the margins of rivers and lakes. It is similar in habits and economy to the Eastern Swamp-hen.

Nest.—Very similar to that of the Eastern Swamp-hen.

Eggs.—Four to seven, pale or creamy-brown, covered with dots, spots, and rounded blotches of pale purplish-red, and underlying markings of purplish-grey and faint inky-grey. Breeding-season: August or September to December or January.

7. Coot *Fulica atra* Linné

Fu'-lic-a—L., *fulica*, coot: *ā-tra*—L., *ater*, black.

Distribution.—Australia generally, and Tasmania; also occurs in Europe, northern Africa, and Asia; accidental to New Zealand.

Notes.—Usually in pairs or flocks, frequenting lakes, swamps, or backwaters of streams. An expert swimmer and diver; a most graceful bird in the water, but with a rather clumsy gait on land. When swimming it constantly jerks its head backwards and forwards, apparently keeping time with the paddle-like strokes of its feet. It is also a noisy bird, with a variety of notes. Food: aquatic plants and animals.

Nest.—An open, bulky structure, composed of aquatic plants; lined with the sheaths and leaves of reeds; built in a bunch of reeds or on top of a low bush growing in water. Some nests have rough pathways of reeds leading to them.

Eggs.—Seven to ten, dull whitish-brown, uniformly covered with dots and spots of purplish-brown and a few faint markings of dull violet-grey. Breeding-season: August to February.

8. Crested Grebe *Podiceps cristatus* Linné

Pō'-di-ceps—L., *podex* (*podicis*), rump; L., *pes*, foot: *cris-tā'-tus*—L., *cristatus*, crested.

Distribution.—Australia generally, and Tasmania; also occurs in the eastern hemisphere and New Zealand.

Notes.—Also called Great Crested Grebe, Tippet Grebe, Loon, Gaunt, and Carr Goose. Usually singly or in pairs, frequenting lakes, streams, and swamps. It is partly a migrant, wintering in the warmer latitudes and arriving in southern Australia during early spring. Deep pools and reaches are its favourite haunts, where it is generally seen floating placidly on the water. When alarmed, it utters a guttural note resembling "Hek," and sinks its body almost entirely beneath the water, while its long neck is stretched upwards to its fullest extent. Food: aquatic plants and animals.

Nest.—A flat, floating platform of green rushes, reeds, and other water plants, merely laid one on top of the other, and moored to rushes or the branches of a floating tree. Usually it rests just above the surface of the water, frequently being quite wet.

Eggs.—Five to seven, greenish-white, soon becoming soiled from contact with the more or less decaying vegetation of which the nest is composed. Breeding-season: November to February.

9. Darter *Anhinga novæ-hollandiæ* Gould

An-hing'-a—*anhinga*, native Brazilian name of the bird: *novæ-hollandiæ*—of New Holland.

Distribution.—Australia generally; also occurs in New Guinea; accidental to New Zealand.

Notes.—Also called Snake-necked Darter, Snake-bird, Diver, and Shag. Usually singly or in pairs, frequenting chiefly inland lakes, streams, and swamps. Generally shy and wary; its favourite haunts being deep pools and secluded reaches. If disturbed while swimming it immediately sinks its body beneath the water, leaving only its head and neck above the surface, or dives, to reappear some distance away. Food: fish and aquatic animals.

Nest.—A substantial platform composed of twigs and sticks, and covered with green branchlets which droop over the sides; generally placed in the branches of a low tree, overhanging or standing in water.

Eggs.—Three to five, greenish and covered with a coating of whitish lime. Breeding-season: October to January (eastern Australia); February and March (north-western Australia); May and June (Northern Territory).

10. Glossy Ibis *Plegadis falcinellus* Linné

Plē'-ga-dis—Gk, *plegas*, *plegados*, sickle: *fal-cin-ell'-us*—L., *falcinella*, little scythe. (Both names refer to the shape of the bill.)

Distribution.—Australia (usually the northern half), and Tasmania; also occurs in eastern United States of America, southern Europe, Africa, southern Asia, and Malaysia; accidental to New Zealand.

Notes.—Also called Black Curlew. Usually in pairs or flocks, frequenting swamps, margins of lakes and streams, and adjoining grass-lands. It is a very useful bird and is generally fearless, often visiting farms to follow the plough. Food: insects and their larvæ.

Nest.—A platform composed of sticks, lined with reeds and other aquatic plants; generally placed in an upright forked branch of a tree. Some nests are composed entirely of leafy branches, without extra lining, and are rather deep structures. Breeds in the most inaccessible parts of large swamps or watercourses.

Eggs.—Three or four, deep greenish-blue, the surface being slightly rough and lustreless. Breeding-season: September to December.

11. White Ibis *Threskiornis molucca* Cuvier

Thrēsk-i-orn'-is—Gk, *threskos*, sacred; Gk, *ornis*, bird: *molucca*—of the Molucca Islands.

Distribution.—Australia (except Western Australia, south of North West Cape); also occurs in the Molucca Islands to New Guinea; accidental to New Zealand.

Notes.—Also called Black-necked Ibis and Sickie-bird. Usually in flocks, frequenting swamps or the margins of streams and lakes which adjoin grass-lands. It is a very useful bird, and destroys countless numbers of injurious insects and their larvæ. Generally it prefers secluded situations where it can search for food or build its nest and breed undisturbed. In many districts, however, it has become quite tame, and is common in paddocks and cultivated areas.

Nest.—A platform, made by bending down polygonum, reeds, and other aquatic herbage. Breeds in colonies, which are generally situated in the centre of a swamp; it is often in the company of the Straw-necked Ibis.

Eggs.—Two to five, dull white and lustreless. Breeding-season: September to December.

12. Straw-necked Ibis *Threskiornis spinicollis* Jameson

spī-ni-coll'-is—L., *spina*, thorn; L., *collum*, neck.

Distribution.—Australia generally; accidental to Tasmania.

Notes.—Also called Farmer's Friend, Dryweather-bird, and Letter-bird. Usually in flocks, frequenting swamps, the margins of streams and lakes, or pastoral lands. It is one of the most useful birds we have in Australia; fortunately it is common, and generally receives the protection it deserves. Being chiefly nomadic in habits it travels over a vast area of country. One sees it dotted over pastoral lands, intent on the capture of injurious insects or their larvæ, or following in the wake of a plough, feeding on the insects thus disturbed.

Nest.—Similar in construction and material to that of the White-necked Ibis. Breeds in colonies generally numbering thousands of birds.

Favourite situations of colonies are small islands of reeds or lignum bushes scattered over a swamp.

Eggs.—Three to five, dull white and lustreless. Breeding-season: September to December.

13. Royal Spoonbill *Platalea regia* Gould

Plat-al'-e-a—Gk, *platalea*, spoonbill: *rē'-gi-a*—L., *regius*, regal.

Distribution.—Australia (except Western Australia, south of North West Cape); also occurs in Borneo, and the Celebes to New Guinea; accidental to New Zealand.

Notes.—Also called Black-billed Spoonbill. Observed singly, in pairs, or in small flocks, frequenting swamps, lagoons, and reed-covered margins of rivers. It is a typical wading bird, and stalks its food in the shallow weed-covered swamps, showing a preference for large swampy areas, where it can keep far out from the margins. Food: small fish, aquatic insects, and molluscs. In breeding plumage an adult has the nuchal crest feathers elongated.

Nest.—An open platform, composed of broken-down reeds and twigs, placed a few feet above the water. Some nests are placed among the branches of low leafy trees. Isolated nests of White and Straw-necked Ibises are often found in breeding colonies of this species.

Eggs.—Three or four, dull chalky-white, covered more or less with spots, blotches, and smears of pale yellowish-brown or reddish-brown markings. Breeding-season: October to April.

14. Yellow-billed Spoonbill *Platalea flavipes* Gould

flāv-i-pēs—L., *flavus*, yellow; L., *pēs* (*pedis*), foot.

Distribution.—Australia generally.

Notes.—Also called Yellow-legged Spoonbill. Observed singly, in pairs, or in flocks, frequenting swamps, margins of lakes and streams, or flood-covered flats. It is generally seen stalking gracefully about the edge of a swamp in search of food, often in the company of other wading birds. Except when breeding, it is extremely shy and wary, and its habit of perching on the branch of a dead tree makes it difficult of approach. Food: fish, aquatic insects, and molluscs.

Nest.—A large structure, composed of sticks loosely interlaced; generally placed in an upright forked branch of a tree, preferably one growing in water. Breeds in colonies, mostly in the company of Cormorants and Herons.

Eggs.—Three or four, dull chalky-white and lustreless. Breeding-season: September to January.

15. Great-billed Heron *Ardea sumatrana* Raffles

Ard'-e-a—L., *ardea*, heron: *sumatrana*—of Sumatra.

Distribution.—Northern Australia, from King Sound (north-western Australia) to Broad Sound (Queensland); also occurs in Malaysia.

Notes.—Usually singly or in pairs, frequenting chiefly mangrove swamps. It is a shy bird and haunts the quiet reaches and channels which intersect the large areas of mangroves. When disturbed, it flies with a lazy and rather ungainly flight to a more secluded part of the swamp. Its note is a hoarse croak. Food: marine animals of various kinds.

Nest.—A rather flat, bulky structure, composed of coarse sticks; placed in a mangrove tree, generally in one overhanging a narrow channel.

Eggs.—Usually two, light bluish-green, the surface being slightly glossy and minutely pitted. Breeding-season: April (Queensland); February (Northern Territory).

16. Little Egret *Egretta garzetta* Linnaeus

E-gret'-ta—N.L., *egretta*, egret: *gar-zet'-ta*—N.L., *garzetta*, little heron.

Distribution.—Northern and eastern Australia; also occurs in southern Europe, Africa, central and southern Asia, and Malaysia to New Guinea.

Notes.—Also called Lesser Egret and Spotless Egret. Observed singly, in pairs, or in small flocks, frequenting swamps or the margins of lakes and streams. Except when breeding, it is exceptionally shy and wary, generally keeping away from the shore, so that it may have an uninterrupted view of its surroundings. It is nomadic, and by no means plentiful. Food: aquatic animals. An adult in non-breeding plumage does not possess the plumes on the back or the ornamental feathers on the fore-neck.

Nest.—A platform composed of sticks, placed in the branches of a tree growing in or at the edge of water. Breeds in colonies, often in association with other wading birds.

Eggs.—Three to five, light or pale bluish-green, the surface being slightly glossy and minutely pitted. Breeding-season: October to December or January (New South Wales); March and April (northern Queensland).

17. Plumed Egret *Egretta intermedia* Wagler

in-ter-med'-i-a—L., *intermedius*, intermediate.

Distribution.—Northern, eastern, and southern Australia; also occurs in southern and eastern Africa, southern Asia, and Malaysia to New Guinea.

Notes.—Also called White Crane. Observed singly, in pairs, or in flocks, frequenting swamps or the margins of lakes and streams. It is nomadic and is similar in habits and economy to the Little Egret. An adult in non-breeding plumage does not possess the plumes on the back or the ornamental feathers on the fore-neck.

Nest.—An almost flat structure, composed of thin sticks and twigs, in some instances with leaves attached; placed in the branches of a tree growing in or near water. Breeds in colonies, often in association with other wading birds.



SWAMP AND REED-BED

Photo. A. Mattingley



TYPICAL STREAM

Photo. A. J. Campbell

Eggs.—Three to five, pale sea-green, the surface being either smooth or finely pitted, and lustreless. Breeding-season: October to December or January.

18. Egret *Egretta alba* Linné

al'-ba—L., *albus*, white.

Distribution.—Australia generally, and Tasmania; also occurs in southern Europe, Africa, central and southern Asia, Malaysia to the Philippine Islands, New Guinea, and New Zealand.

Notes.—Also called Great Egret and White Crane. Observed singly, in pairs, or in flocks, frequenting swamps or the margins of lakes and streams. It is nomadic, and when not breeding is generally seen scattered over the shallow waters of lakes and swamps, silently wading in quest of prey. Food: fish, frogs, and aquatic insects. An adult in non-breeding plumage does not possess the plumes on the back or the ornamental feathers on the fore-neck.

Nest.—A platform composed of sticks; placed in the branches of a tree growing in or near water. Breeds in colonies, often in association with other wading birds.

Eggs.—Three to five, bluish-green, the surface being minutely pitted. Breeding-season: November to January.

19. White-faced Heron *Notophoyx novæ-hollandiæ* Latham

Not-o-phō'-yx—Gk, *notos*, south; Gk, *phoyx*, heron: *novæ-hollandiæ*—of New Holland.

Distribution.—Australia generally, and Tasmania; also occurs in the Celebes, Molucca Islands, New Guinea, New Caledonia, Lord Howe Island, and New Zealand.

Notes.—Also called White-fronted Heron and Blue Crane. Observed singly, in pairs, or in small flocks, frequenting swamps, the margins of lakes and streams, mud-flats, and mangroves. It is generally seen either wading in shallow water or perched on a dead limb of a tree near water. When disturbed, it utters a loud croaking note, rises slowly with a laboured flight, then wends its way to safety. Food: yabbies, freshwater snails, frogs, and insects of various kinds.

Nest.—A rather scanty platform, composed of sticks, placed in the branches of a tree growing in or near water. Breeds singly or in colonies.

Eggs.—Three to six, pale bluish-green, the surface being smooth and lustreless. Breeding-season: September to January.

20. White-necked Heron *Notophoyx pacifica* Latham

pac-if'-ic-a—*pacificus*, of the Pacific Ocean.

Distribution.—Australia generally, and Tasmania.

Notes.—Also called Pacific Heron and White-necked Crane. Observed singly, in pairs, or in small flocks, frequenting swamps or the

margins of lakes and streams. It is generally very shy and wary, keeping to more or less open situations, where it has an uninterrupted view of its surroundings. Food: fish, small reptiles, freshwater molluscs, frogs, aquatic insects, and small mammals.

Nest.—A rather bulky platform, composed of sticks; placed in the branches of a tree growing in or near water. Breeds in colonies, often in association with Spoonbills and Cormorants. Generally dead trees, chiefly those standing in swamps or flooded lands, are used as nesting-sites.

Eggs.—Usually four, rarely five, pale greenish-blue, the surface being smooth and lustrous. Breeding-season: September to January.

21. Pied Heron *Notophoxyx aruensis* Gray

aruensis—of the Aru Islands, south of New Guinea.

Distribution.—Northern Australia, from Wyndham (north-western Australia), to Cape York Peninsula; also occurs in the Celebes, Molucca Islands, New Guinea, and the Aru Islands.

Notes.—Observed singly, in pairs, or in flocks, frequenting chiefly mangroves and swampy areas. Very little has been recorded of its habits and economy. It is believed to be a migrant, visiting Australia during the spring and summer months.

Nest.—A slightly concave structure, composed of small mangrove sticks and twigs; placed in a mangrove tree, at heights up to 15 feet from the ground.

Eggs.—Three or four, deep blue-green. Breeding-season: April (or March to May).

22. Black Cormorant *Phalacrocorax carbo* Linné

Phal'-a-cro-cor'-ax—Gk, *phalacro*, bald; Gk, *corax*, crow or raven: *car'-bo*—L., *carbo*, charcoal (black).

Distribution.—Australia generally, and Tasmania; also occurs in eastern North America, Europe, Africa, Asia to New Guinea, and New Zealand.

Notes.—Also called Black Shag. Usually singly or in small flocks, frequenting lakes, streams, rocky islets, or inlets. It is generally seen perched on poles or snags in streams, on rocks, or resting on sand-banks and mud-flats. This bird often dives from its perch after fish and yabbies, though the usual method of securing food is to submerge and pursue its prey under water.

Nest.—An open and almost flat structure, composed of sticks, twigs, aquatic herbage, and debris; placed either on a horizontal branch of a tree, in a low bush, or on a ledge of rock. Breeds in colonies.

Eggs.—Three to five, pale bluish-white, thickly and often roughly coated with lime; the eggs soon become scratched and nest-stained. Breeding-season: July to October (eastern Australia); September to December (Tasmania).

23. Little Black Cormorant *Phalacrocorax ater* Lesson

ā-ter—L., *ater*, black.

Distribution.—Australia generally, and Tasmania; also occurs in Java, Borneo to New Guinea, New Caledonia, Norfolk Island, and New Zealand.

Notes.—Also called Little Black Shag. Usually singly or in flocks, frequenting lakes, streams, rocky islets, or inlets. It is similar in habits and economy to the Black Cormorant, though more plentiful than that species.

Nest.—A platform, composed of sticks and thin twigs, often with leaves attached, placed on a horizontal branch of a tree. Usually breeds in large colonies.

Eggs.—Three to six, pale green, coated with lime. Breeding-season: August to December (southern Australia); May and June (northern Australia).

24. White-breasted Cormorant *Phalacrocorax fuscescens* Vieillot
fus-ces'-cens—L., *fuscescens*, becoming brown.

Distribution.—Southern Australia and Tasmania.

Notes.—Also called Black-and-white Shag. Usually singly or in flocks, frequenting rocky islands and inlets. It is chiefly a coastal bird and is similar in habits and economy to the other species of Cormorants.

Nest.—A flat structure, composed of seaweed and flotsam; placed on a ledge of rock. Breeds in large colonies on islands.

Eggs.—Two to four, pale bluish-white, the surface being more or less coated with lime. Breeding-season: October to January.

25. Pied Cormorant *Phalacrocorax varius* Gmelin
var'-i-us—L., *varius* different.

Distribution.—Australia generally, and Tasmania; also occurs in Lord Howe Island and New Zealand.

Notes.—Also called Black-and-white Shag. Usually singly or in flocks, frequenting swamps, lakes, streams, inlets, or rocky islands. It is similar in habits and economy to the other species of Cormorants, with which it often congregates.

Nest.—A substantial structure, built on a firm foundation of sticks; lined with green eucalypt leaves and the bird's quill feathers; placed on a horizontal branch of a tree, on a low bush, or on the ground. Breeds in large colonies on islands, in mangroves, or in inland swamps.

Eggs.—Three to five, pale bluish-white, more or less obscured by a coating of lime. Breeding-season: September to December; March to July.

26. Little Pied Cormorant *Microcarbo melanoleucus* Vieillot

Mīcr-o-carb'-o—Gk, *micros*, small; L., *carbo*, charcoal: *mel'-an-o-lēuc-us*—Gk, *melas* (*melanos*), black; Gk, *leucos*, white.

Distribution.—Australia generally, and Tasmania; also occurs in Sumatra, Celebes to New Guinea, New Caledonia, Lord Howe Island, and New Zealand.

Notes.—Also called Little Black-and-white Shag and Frilled Shag. Usually singly or in flocks, frequenting lakes, swamps, streams, inlets, or rocky islets. It is very plentiful in inland districts, and is similar in habits and economy to the other species of Cormorants.

Nest.—A platform composed of sticks and small green twigs; placed on a branch of a tree, usually one growing in or near water. Breeds in large colonies, often in association with different species of wading birds.

Eggs.—Four to seven, usually five, pale bluish-white, more or less obscured with a coating of lime. Breeding-season: usually September to January.

PLATE XXXIII

BIRDS OF THE LAKES, STREAMS, AND SWAMPS

1. White-eyed Duck *Nyroca australis* Eyton

Ny-roc'-a—N.L., from Russian *nyrok*, a kind of duck: *australis*—southern (Australian).

Distribution.—Australia generally, and Tasmania; also occurs in New Guinea, New Caledonia, and New Zealand.

Notes.—Also called Hardhead, White-winged Duck, Barwing, Brown-head, and Karakahia. Usually in pairs or flocks, showing a preference for the deep still reaches and pools of swamps, streams, or shallow water. It is exceedingly shy and wary, as well as being perhaps the fastest flier of our Ducks. Most of its food is procured by diving; it remains under water some considerable time, raking the mud in search of shell-fish or other food.

Nest.—A slight depression in the ground, lined with grass mixed with down and feathers; often in lignum or cane-grass, well concealed, and composed of grass with very little down; and sometimes in a hole or hollow spout of a tree.

Eggs.—Eleven to as many as twenty-five, light creamy-white (unless nest-stained), the surface being glossy and greasy. Breeding-season: September or October to December.

2. Grey Teal *Querquedula gibberifrons* Müller

Quer-qued'-u-la—N.L., *querquedula*, duck: *gib'-ber-i-frons*—L., *gibberus*, humped; L., *frons*, forehead.

Distribution.—Australia generally, and Tasmania; also occurs in the Celebes, Java to New Guinea, New Caledonia, and New Zealand.

Notes.—Also called Wood Teal and Slender Teal. Usually in flocks, frequenting streams, swamps, and lagoons, either inland or near the coast. It usually congregates in large numbers and is tolerably fearless, unless disturbed by too much shooting. The call-note is a peculiar little "Cack-cack-cack," repeated in quick succession. Food: aquatic animals and plants.

Nest.—Composed of grass, and always well lined with down; placed in a hollow limb, a hole in a tree, or in lignum or grass.

Eggs.—Five to twelve, creamy-white (unless nest-stained), the surface being smooth and slightly glossy. Breeding-season: practically throughout the year, influenced by the rainfall.

3. Chestnut Teal *Querquedula castanea* Eyton

cas-tan'-e-a—L., *castaneus*, chestnut.

Distribution.—New South Wales, Victoria, South Australia, south and mid-western Australia, and Tasmania.

Notes.—Also called Chestnut-breasted Teal, Green-headed Teal, Black Teal, Mountain Teal, and Tete. Usually in small flocks, often in the company of the Grey Teal, frequenting salt-water lakes, inlets, and swamps, as well as inland streams and lagoons. It is similar in habits and economy to the Grey Teal.

Nest.—In a hollow limb or hole in a tree, but occasionally on the ground in grass or herbage in the vicinity of water; lined with down.

Eggs.—Nine to thirteen, cream-coloured (unless nest-stained), the surface being glossy and greasy. Breeding-season: June to December.

4. Garganey Teal *Querquedula querquedula* Linné

quer-qued'-u-la—N.L., *querquedula*, duck.

Distribution.—Northern Europe, Asia, tropical Africa to New Guinea; accidental to Australia.

Notes.—Also called Summer Teal and Cricket Teal. There are only three records of the occurrence of this species in Australia, the specimens being secured in Victoria. The female differs from the adult male chiefly by the absence of the chocolate-brown on the sides of the face and fore-neck, the dark brown spot on the chin (this part being white), the ornamental feathers on the scapulars, and the fine barring on the lower abdomen.

Nest.—A depression in the ground among grass or herbage, lined with grass and down.

Eggs.—Eight to fourteen, buffish-white or cream-coloured (unless nest-stained), the surface being smooth and glossy. Not known to breed in Australia.

5. Blue-billed Duck *Oxyura australis* Gould

Ox-y-ūr'-a—Gk, *oxys*, sharp; Gk, *oura*, tail: *australis*—southern (Australian).

Distribution.—Southern Australia (from Moora, Western Australia, to Chinchilla, Queensland) and Tasmania.

Notes.—Also called Spiny-tailed Duck, Stiff-tailed Duck, Diving Duck, and Little Musk Duck. Usually in pairs or small flocks, frequenting chiefly lakes, lagoons, or swamps. It is a shy and wary bird; generally keeps to the deep reaches and pools or to the small islands of reeds and

flags growing well away from the margins of lakes or swamps. Most of its food is procured by diving; it remains under water for considerable periods. Food: aquatic animals and plants. The female is freckled grey-brown, the underparts being lighter than those of the male.

Nest.—A bulky structure, composed of flags or reeds, and lined with down. The nest is made by bending down and interlacing the flags.

Eggs.—Four to six, pale greenish-white (unless nest-stained), the surface being slightly glossy and rough. Breeding-season: October to December or January.

6. White-quilled Pygmy Goose *Nettapus coromandelianus* Gmelin
Nēt'-ta-pus—Gk, *netta*, duck; Gk, *pus* (*pous*), *podos*, foot: *coromandelianus*—of the Coromandel coast, India.

Distribution.—North-eastern Australia, as far south as the Clarence River (New South Wales); also occurs in India, China, Malaysia to the Celebes, and Sunda Island.

Notes.—Also called White-quilled Goose-teal. Very little has been recorded of its habits. It is said to frequent lakes, streams, and swamps, where it congregates in small flocks.

Nest.—In a hole in a tree.

Eggs.—One authentic egg is described as faint creamy-white, the shell being very fine and smooth and without gloss. Breeding-season: not recorded.

7. Green Pygmy Goose *Nettapus pulchellus* Gould
pul-chel'-lus—L., *pulchellus*, pretty.

Distribution.—North-western Australia, Northern Territory, and northern Queensland; also occurs from the Celebes to New Guinea.

Notes.—Also called Green Goose-teal. Usually in pairs or small flocks, frequenting lakes, streams, or swamps. It is generally shy and difficult to approach. When disturbed, it rises quickly and utters a peculiar whistling note while on the wing. Food: aquatic animals and plants.

Nest.—A flat structure, occasionally with a slight cavity, composed of long dry grasses; lined with feathers and down. Generally placed among herbage growing in water. It also nests in a hole in a tree.

Eggs.—Four to eleven or even more, faint creamy-white (unless nest-stained), the surface being smooth and lustrous. Breeding-season: February and March, or during the rainy season.

8. Maned Goose *Chenonetta jubata* Latham

Chēn-o-nēt'-ta—Gk, *chen*, goose; Gk, *netta*, duck: *jub-ā'-ta*—L., *jubatus*, maned.

Distribution.—Australia and Tasmania.

Notes.—Also called Wood Duck. Usually in pairs or flocks, showing a preference for the upper reaches of streams and the timbered margins

to the more open spaces of swamps. It procures most of its food out of the water, feeding on grass and herbage growing on the margins of streams and swamps; it often frequents flats some distance from water.

Nest.—In a hollow limb or hole in a tree, lined with down and feathers; often high up, and sometimes far from water.

Eggs.—Six to twelve, creamy or creamy-white, the surface being smooth and lustrous. Breeding-season: all the year round, dependent on rainfall.

9. Freckled Duck *Stictonetta nævosa* Gould

Stic-to-nēl'-ia—Gk, *stictos*, freckled; Gk, *netta*, duck: *næv-ō'-sa*—L., *nævosus*, spotted.

Distribution.—Southern Australia (as far north as North West Cape, Western Australia, and the Flinders River, northern Queensland) and Tasmania.

Notes.—Also called Monkey Duck and Speckled Duck. Usually in pairs or small flocks, frequenting chiefly lakes and swamps of the inland districts. It is a rare species in coastal areas, generally arriving in the interior during periods of drought. Although a fast flier, it is rather a quiet species, spending much of its time resting on banks and fallen logs or floating lazily upon the water. Food: aquatic plants and animals.

Nest.—A flat structure, composed of grass and herbage; lined with down. Generally well hidden among herbage growing in or near water, and sometimes with a platform leading to it.

Eggs.—Five to seven or twelve, pale creamy-brown, the surface being smooth and highly lustrous. Breeding-season: September to November or December.

10. Pink-eared Duck *Malacorhynchus membranaceus* Latham

Mal'-ac-o-rhynch'-us—Gk, *malacos*, soft; Gk, *rhynchos* (*rhugchos*), beak: *mem-bra-nā'-ce-us*—L., *membranaceus*, adj. from *membrana*, membrane.

Distribution.—Australia (except Western Australia south of North West Cape) and Tasmania.

Notes.—Also called Zebra Duck, Pink-eyed Duck, and Widgeon. Usually in pairs, occasionally in small flocks, frequenting chiefly shallow lakes and swamps. It is mostly confined to the inland districts and only occasionally visits the coast. Most of its food is procured by "shovelling" about with its bill in the mud at the bottom of the water; it often keeps its head under water for lengthy periods. Food: aquatic plants and animals.

Nest.—A rounded mass of down plucked from the breasts of the parent birds and placed among grass or herbage growing in water, or on a deserted platform-shaped nest of another species. Not infrequently the nest is placed some feet from the entrance of a hollow limb or hole in a tree, from water-level up to a height of 20 feet or more.

Eggs.—Six to eight, creamy-white, the surface being dull. Breeding-season: August to December.

11. Whistling Tree-duck *Dendrocygna arcuata* Horsfield

Den-dro-cyg'-na—Gk, *dendron*, tree; Gk, *cynos*, and L., *cygnus*, swan: *ar-cu-ā-ta*—L., *arcuatus*, curved like a bow.

Distribution.—Northern, eastern, and occasionally southern Australia; also occurs in the Philippines to Malaysia, New Caledonia, and Oceania.

Notes.—Also called Whistling Duck and Tree-duck. Usually in flocks, frequenting chiefly streams, lakes, or lagoons of the inland districts. Most of its food is procured out on the plains, which it visits at night, resorting to streams and lakes during the day, where it rests and sleeps, either on the water or in nearby trees. It is called Whistling Duck on account of its whistling or piping call. Food: chiefly grass and other herbage.

Nest.—A depression in the grass, without lining; often a great distance from water.

Eggs.—Eight to twelve or more, creamy-white, slightly glossy, and pointed at both ends. Breeding-season: February, March, May, and November.

12. Plumed Tree-duck *Dendrocygna eytoni* Eyton

eytoni—T. C. Eyton (1809-1880), British ornithologist.

Distribution.—Northern, central, and occasionally southern Australia; accidental to Tasmania and New Zealand.

Notes.—Also called Plumed Whistling Duck and Eyton's Tree-duck. Usually in flocks, frequenting chiefly streams, lakes, swamps, or water-holes of the northern inland districts. It prefers shallow water near the margins of streams or swamps, except during the breeding-season, when it resorts to well-grassed lands some distance from water. It also perches in trees. Like the Whistling Tree-duck, it has a loud whistling call. Food: chiefly grass and other herbage.

Nest.—A slight hollow in the ground, lined with dried grasses; placed among grass or herbage growing upon plains, and generally far from water.

Eggs.—Eight to twelve, pale cream colour, with a glossy surface; sometimes stained or minutely spotted with light brown. Breeding-season: September to December, occasionally as late as February.

13. White-headed Shelduck *Tadorna radjah* Garnot

Tad-orn'-a—N.L., *tadorna*, from an Italian word for duck: *radjah*—native name of the duck was said to be *radja*.

Distribution.—North-western Australia, Northern Territory, and Queensland, accidental to New South Wales; also occurs in the Molucca Islands and New Guinea.

Notes.—Also called Burdekin Duck, Mangrove Duck, and White-headed Shelduck. Usually in pairs or small flocks, frequenting lakes and swamps. It prefers shallow water and often resorts to adjacent grass-lands

and mangrove swamps. Food: aquatic plants and animals, crabs, molluscs, and other marine-life.

Nest.—In a hollow limb or hole in a tree.

Eggs.—Four to eleven, rich creamy-white, the surface being smooth and slightly glossy. Breeding-season: December to February.

14. Chestnut-breasted Shelduck *Casarca tadornoides* Jardine and Selby
Cas-arc'-a—N.L., *casarca*, from a Russian word for goose: *tad-orn-ōid'-es*—N.L., *tadorna*, from an Italian word for duck, a specific name of an allied species; *-oides*, from Gk, *eidos*, form = like.

Distribution.—New South Wales, Victoria, South Australia, Western Australia (as far north as the Fitzroy River), and Tasmania.

Notes.—Also called Mountain-duck and Chestnut-coloured Shelduck. Usually in pairs or flocks, frequenting lakes, swamps, or open plains. It is generally shy and wary and keeps far out on the shallow lakes or swamps; when disturbed, it rises quickly, uttering a harsh cry resembling "Chank, chank," and leaves the locality. Food: chiefly grass and other herbage, also aquatic plants and animals.

Nest.—Composed of dried grasses and lined with down, usually placed in a hollow limb, or hole in a tree, sometimes in or near water, often far from it; at times it is placed on the ground or in a rabbit burrow.

Eggs.—Eight to fourteen, creamy-white, with a glossy surface. Breeding-season: July to December.

15. Black Duck *Anas superciliosa* Gmelin

An'-as—L., *anas*, *anatis*, duck; *su-per-cil-i-ōs'-a*—L., *superciliosus*, browed.

Distribution.—Australia generally, and Tasmania; also occurs in the Celebes, Java to the Pelew Islands, New Guinea to Tahiti, New Caledonia, and New Zealand.

Notes.—Also called Grey Duck, Australian Wild Duck, Brown Duck, and Parera. Usually in pairs or flocks, frequenting streams, lakes, or swamps both inland and coastal. It is the best known of our Ducks and is fast becoming domesticated. Food: grass, herbage, and aquatic plants and animals.

Nest.—An open structure, composed of dried grass, and lined with feathers and down; placed in a variety of situations—on the ground among rushes or grass growing near water, in herbage growing in a field far from water, on a deserted platform-shaped nest of another species, or in a hollow stump or limb of a tree.

Eggs.—Eight to thirteen, pale cream or creamy-white, occasionally tinged with green, which soon becomes nest-stained, the surface being smooth and slightly glossy. Breeding-season: in normal times, July to December.

16. Blue-winged Shoveller *Spatula rhynchotis* Latham

Spat'-u-la—L., *spatula*, spoon: *rhynch-ō-tis*—Gk, *rhynchos*, beak.

Distribution.—Southern Australia (from North West Cape, Western Australia, to Richmond, Queensland), Tasmania, and New Zealand.

Notes.—Also called Spoonbill-duck, Stinker, and Kuruwhengi. Usually in pairs or flocks, frequenting swamps, lagoons, or freshwater lakes, both near the coast and inland. It is very shy and wary, mostly keeping to the open spaces in the swamps far out from the water's edge. When flushed, it makes a peculiar whistling or humming noise with its wings. Food: aquatic plants and animals.

Nest.—A slightly grass-lined depression in the ground, placed under the shelter of a tussock of grass or clump of low herbage, sometimes out on an open plain, but usually not far from water.

Eggs.—Four to eleven, creamy-white tinged with green, the surface being slightly glossy. Breeding-season: August to December.

17. Musk Duck *Biziura lobata* Shaw

Bi-zi-ūr'-a—origin unknown: *lob-ā'-ta*—L., *lobatus*, lobed.

Distribution.—Southern Australia (from North West Cape, Western Australia, to Rockhampton, central Queensland) and Tasmania.

Notes.—Also called Mould Goose. Usually singly or in pairs, occasionally in small flocks, frequenting inland streams and lakes and inlets of the coast. It is an interesting duck with many quaint habits; an old drake will often amuse himself by throwing out jets of water on each side with a rapid back-kick of his feet, accompanied by a deep-toned note, or will place his bill on his tail or throw back his head and, with pouch inflated and tail spread, spin round and round on the water. Food: aquatic plants and animals.

Nest.—A bulky structure placed among reeds and made by bending down and interlacing the stems, forming a cup-shaped mass which is lined with grass and down.

Eggs.—Three to six, pale green, the surface being rough and slightly glossy. Breeding-season: August to December.

18. Little Bittern *Ixobrychus minutus* Linné

Ixo-bry'-chus—Gk, *ixos*, reed; Gk, *brychein*, to roar: *min-ū'-tus*—L., *minutus*, little.

Distribution.—Europe, Africa, Asia, coastal Australia (except the southern and north-western portion), and New Zealand.

Notes.—Also called Minute Bittern and Kaoriki. Usually singly or in pairs, frequenting the margins of streams, and swamps. It is remarkably shy and seclusive in habits, and difficult to flush. Generally it trusts to a crouching or an upright posture, hoping to avoid observation. Food: small fish and aquatic animals.

Nest.—An open structure, composed of dead pieces of aquatic plants

and grasses, and generally attached to reeds just above the surface of the water.

Eggs.—Four, pure white, oval in form. Breeding-season: November.

19. Nankeen Night-heron *Nycticorax caledonicus* Gmelin

Nyc'-ti-cor'-ax—Gk, *nyx*, *nyctos*, night; Gk, *corax*, crow, raven: *caledonicus*—of (New) Caledonia.

Distribution.—Australia generally, and Tasmania; also occurs in the Celebes, Timor to New Guinea, Bismarck Archipelago, New Caledonia, and Lord Howe Island; accidental to New Zealand.

Notes.—Also called Nankeen Crane. Usually in pairs or flocks, frequenting the margins of streams and swamps. It is a nocturnal feeder, and is generally seen during the day roosting among the bushy limbs of a tree growing in or near water, or it will remain well hidden in the tall reeds of a swamp. Towards dusk it issues forth from cover, and flies to its feeding-grounds. It utters a harsh croaking note during the night or when disturbed at its roosting place. Food: yabbies, freshwater molluscs, frogs, and aquatic insects.

Nest.—A scanty platform, composed of sticks, and generally placed on a horizontal branch of a tree; river-oaks and willows are favourite nesting-trees.

Eggs.—Two or three, occasionally four, pale bluish-green. Breeding-season: September to January usually, but practically all the year round.

20. Mangrove Bittern *Butorides striata* Linné

Bu-to-ri'-dēs—Fr. *butor*, bittern; *-oides*, from Gk, *eidos*, form = like: *stri-ā'-ta*—L., *striatus*, striped.

Distribution.—Coastal mid-western, northern, and eastern Australia, as far south as New South Wales; also occurs in South America, the Pacific Islands, Africa, India to Japan, and Malaysia.

Notes.—Also called Little Mangrove Bittern, Mangrove Heron, and Green-backed Bittern. Usually singly or in pairs, frequenting the muddy foreshores and flats of inlets and rivers, more particularly localities thickly covered with mangroves. It is generally seen skulking about the flats seeking food, or perched among the branches of trees growing in or near water. When disturbed, it utters a loud squawking note, and sometimes adopts the stick-like attitude of other species of Bitterns, especially when perched in a tree, hoping to avoid observation. Food: fish, crustaceans, molluscs, and annelids.

Nest.—A loosely constructed platform, composed of sticks, and placed in the branches of a tree, usually a mangrove, growing in or near water.

Eggs.—Three or four, pale bluish-green, the surface being dull and lustreless. Breeding-season: September to December.

21. Red Mangrove Bittern *Butorides rogersi* Mathews

rogersi—John P. Rogers, collector for G. M. Mathews in north-western Australia.

Distribution.—Mid-western Australia (Onslow).



BIRDS OF THE LAKES, STREAMS AND SWAMPS

Notes.—It inhabits similar localities to those frequented by the Mangrove Bittern, and is considered by many ornithologists to be only a red-coloured phase of that species. It is also similar in habits and economy.

Nest.—Not recorded.

Eggs.—Not recorded.

22. Black Bittern *Dupetor flavicollis* Latham

Dū-pē'-tor—Gk, *dupetor*, roarer: *flāv-i-coll'-is*—L., *flavus*, yellow; L., *collum*, neck.

Distribution.—Australia (except the southern portions); also occurs in India, China, and Malaysia to New Guinea.

Notes.—Also called Yellow-necked Bittern and Yellow-necked Mangrove Bittern. Usually singly or in pairs, frequenting timbered margins of streams, mangrove flats, and tree and reed-lined lakes and swamps. It is more plentiful near the coast than inland; it is also more nocturnal in habits than the Mangrove Bittern. During the day it is mostly seen perched in a tree or resting among reeds, and when startled, generally assumes the stick-like attitude common to all Bitterns. Food: fish, frogs, and aquatic insects.

Nest.—A platform composed of sticks, placed in a fork of a horizontal branch of a tree, and generally in a branch overhanging water.

Eggs.—Three to five, white, with a greenish tinge inside the shell. Breeding-season: September to January.

23. Brown Bittern *Botaurus poiciloptilus* Wagler

Bo-taūr'-us—probably a combination of two Latin words for bull (*bos*, *taurus* = *botaurus*): *pōi-ci-lop'-til-us*—Gk, *poicilos*, mottled; Gk, *ptilon*, feather.

Distribution.—Southern Australia (from Shark Bay, Western Australia, to the Clarence River, New South Wales) and Tasmania; also occurs in New Caledonia and New Zealand.

Notes.—Also called Australian Bittern, Black-backed Bittern, Boomer, and Bull-bird. Usually singly or in pairs, frequenting margins of streams, lakes, and swamps. It is nocturnal in habits, and, keeping as it does to the depths of a dismal swamp, is seldom seen during the day. The "booming" call of this Bittern, which comprises three, rarely four, deep booms, with a distinct interval between each, has been likened to the bellowing of a bull, and is also generally connected with that fabulous creature, the bunyip, said to dwell in the dark interiors of swamps and other such weird places. Food: fish, frogs, yabbies, and aquatic animals of all kinds.

Nest.—A platform made with bent-over and interlaced reeds and rushes, and usually placed in the densest part of a swamp, about 6 inches above the surface of the water.

Eggs.—Four or five, uniform pale olive-green, the surface being smooth and lustrous. Breeding-season: October to January or February.

24. Pheasant-coucal *Centropus phasianinus* Latham

Cen'-tro-pus—Gk, *centron*, spur; Gk, *pus* (*pous*), *podos*, foot: *phā-si-ā-ni'-nus*—L., *phasianinus*, pheasant-like.

Distribution.—Western Australia (as far south as the Ashburton River), northern Australia, and eastern Australia (as far south as Malla-coota Inlet).

Notes.—Also called Coucal and Swamp Pheasant. Usually singly or in pairs, frequenting the margins of streams, lakes, and swamps, chiefly of the coastal districts. It is shy and wary, and when flushed, generally flies from tree to tree or drops like a stone to cover and passes swiftly through the tall reeds and grasses. The loud whooping call, resembling "Coop, coop," or "Book, book," repeated for long periods, is mostly uttered at daybreak and at dusk. Food: frogs, small reptiles, aquatic insects, also eggs and young of other birds.

Nest.—A large, globular structure built in a tussock of tall grass, formed by drawing the tops of the grasses together, and lining the inside with dried leaves; often a pathway is built leading up to the entrance. Sometimes nests are made in low bushes.

Eggs.—Three to five, dull white, the surface being smooth and slightly lustrous. Breeding-season: November to March.

BIRDS OF THE OCEAN AND SHORE



Photo. A. R. McCulloch

AN OCEAN HOME OF SEA BIRDS



Photo. C. L. Bayrett

SEA-SHORE HOME OF WADERS



PLATE XXXIV

BIRDS OF THE SHORES AND RIVER MARGINS

1. Knot *Calidris canutus* Linné

Cal-id'-ris—Gk, *calidris* (or *scalidris*), kind of bird: *canutus*—King Canute.

Distribution.—Siberia, migrating southwards to Africa, India, and Ceylon, Australasia, and South America down the east coast to Brazil.

Notes.—Usually in flocks, visiting mainly the eastern and southern coasts, where it frequents sand-flats or the muddy shores of inlets and rivers. It arrives from the north during spring, and departs at the beginning of autumn. Generally it is seen in small parties, and occasionally in midsummer in very large flocks. It is usually very shy and wary, and when flushed, instead of flying to another feeding-ground, it rises to a great height and circles around.

Nest.—Merely a small hollow, apparently rudely shaped by the nesting bird; placed in shallow depressions among the brown clumps of *Dryas integrifolia* and *Elyana bellardi* which grow among the rubbles and gravel of the high ridges (*Calidris canutus rufus* Wilson); north-western Greenland (Crockerland Arctic Expedition).

Eggs.—Four, greenish-grey, covered with close, oblique spots of dark reddish-brown, intermingled with underlying markings of greyish-violet and greyish-blue, forming a zone at the larger end where there are a few surface spots and streaks of dark blackish-brown (*Calidris canutus*). Breeding-season: December (Otto Ottosson, M.D., Lenhofda, Sweden).

2. Great Knot *Calidris tenuirostris* Horsfield

ten-u-i-ros'-tris—L., *tenuis*, slender; L., *rostrum*, bill.

Distribution.—Eastern Siberia, migrating southwards to Australia.

Notes.—Usually in flocks, frequenting the shores and river margins of the coastal areas of Western Australia, northern Australia, and Queensland. It is a spring and summer visitor to our shores, and little has been recorded of its habits.

Nest.—A slight depression in short reindeer moss. Breeding-area located at about 1500 feet elevation on a barren mountain ridge near the mouth of the River Kolyma in north-eastern Siberia.

Eggs.—Four, greyish-yellow, uniformly and closely speckled with reddish-brown markings, between which are underlying spots of lilac. At the broad end of the egg the reddish-brown forms a distinct cap or zone with a few twisted lines of a brown colour. Breeding-season: June.

3. Red-capped Dotterel *Charadrius ruficapillus* Temminck

Char-ad'-ri-us—Gk, *charadrios*, valley bird: *rū-fi-cap-ill'-us*—L., *rufus*, red; L., *capillus*, hair of the head.

Distribution.—Australia generally, and Tasmania; also occurs in southern New Guinea; accidental to New Zealand.

Notes.—Also called Red-necked Plover and Sand-lark. Usually in pairs or flocks, frequenting the shores of inlets or the margins of lakes and rivers. It is generally seen running with quick little strides along the edge of the water, and if disturbed flies a few paces away, alights, and repeats these movements. Food: chiefly insects and small crustaceans.

Nest.—A depression in the sand, usually lined with broken pieces of shell or tiny pebbles. Favourite sites are the crowns of slight ridges, not far from water; this species has been known to nest two miles from the nearest water.

Eggs.—Usually two, pale greenish, covered all over with dots and lines of dark brown to purplish-black markings and a few underlying spots of lavender. Breeding-season: August to December or January.

4. Black-fronted Dotterel *Charadrius melanops* Vieillot

mel'-an-ops—Gk, *melas* (*melanos*), black; Gk, *ops*, face.

Distribution.—Australia generally, and Tasmania.

Notes.—Also called Sandpiper. Usually in pairs or family parties, frequenting chiefly shingly and muddy banks of rivers, lakes, or water-holes, also the shores of inlets. It is generally observed near the water's edge, along which it runs with great rapidity. When flushed, it rises quickly, and frequently utters a plaintive note like "Chick chick." Food: aquatic insects, worms, and small crustaceans.

Nest.—A depression in the ground, favourite sites being shingly flats of rivers, rarely far from the water.

Eggs.—Usually three, stone, or greyish-yellow, covered with various shaped markings of brown and lavender. Breeding-season: September to December (southern); April to September (northern).

5. Large Sand-dotterel *Charadrius leschenaulti* Lesson

leschenaulti—J. B. Leschenault de la Tour (1773-1826), French collector and botanist.

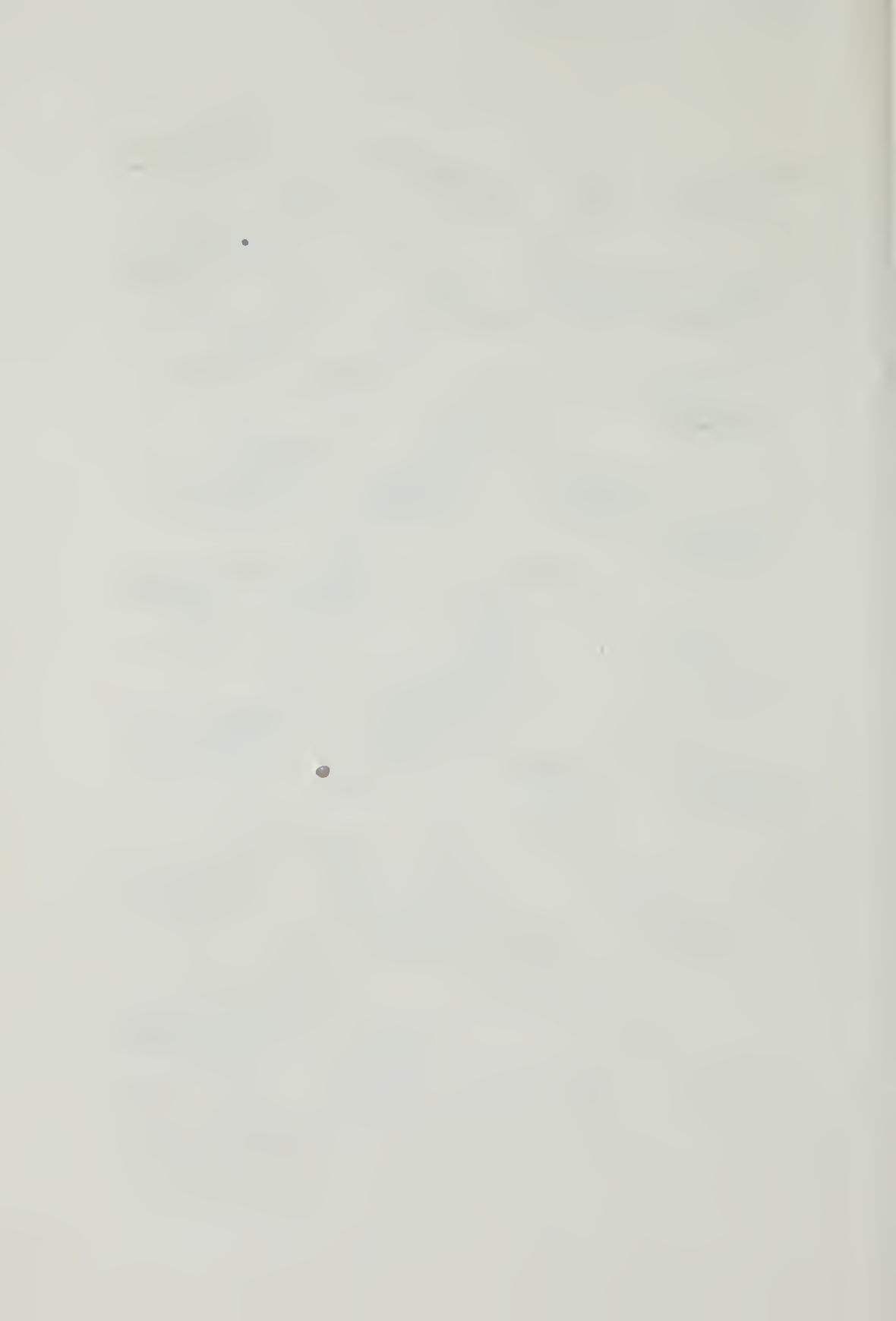
Distribution.—Tibet and eastern Siberia, migrating southwards to Africa and Australia; accidental to Europe.

Notes.—Usually in flocks, frequenting tidal salt creeks and the sea-shore. It is common in north-western Australia during the summer months, where it is generally observed on mud-banks and sandy or shingly beaches. Little has been recorded of its habits and economy. An adult in breeding plumage is coloured cinnamon-rufous on the crown of the head, the hind-neck, and on a narrow collar round the fore-neck.

Nest.—A depression in the sand and fine shingle on the borders of a lake (Mathews and Iredale).



BIRDS OF THE SHORES AND RIVER MARGINS



Eggs.—Four eggs? pale stone, heavily marked at the larger end, and sparingly on the smaller end, with dark purplish-black and lavender spots; about the middle of the shell there are some spots of pale greenish-yellow; axis 40 mm., diameter 29 mm. (Mathews and Iredale). An egg from the "Seeböhm Collection." Found breeding in south-east Kangai, in northern Gobi, S.S.W. of Ulan-bator and on Lake Orok-nor, where they were numerous.

6. Oriental Dotterel *Charadrius veredus* Gould

ver-ē'-dus—L., *veredus*, fleet.

Distribution.—Mongolia, migrating southwards to Australia (except south-western Australia).

Notes.—Usually in flocks, arriving in Australia during September, departing in March. It frequents the seashore and adjoining salt marshes, also swampy areas inland. Like most of the Waders, its flight is swift and often erratic, and characterized by zigzag turns in all directions. When at rest it stands erect and motionless. It is extremely timid and wary, and when disturbed utters a sharp whistling note. Food: insects, worms, and small crustaceans. An adult in winter plumage differs in the almost entire absence of chestnut and black on the fore-neck, chest, and sides of breast.

Nest.—Not recorded.

Eggs.—Not recorded.

7. Mongolian Sand-dotterel *Charadrius mongolus* Pallas

mongolus—Mongolian.

Distribution.—Siberia, migrating southwards to Australia (except southern Australia).

Notes.—Usually in flocks, arriving in Australia during September, departing in March. It frequents alike salt marshes and swampy areas inland. Little has been recorded of its habits and economy while on its annual visits to Australia. Its call-note is a clear, penetrating "Drrrrüt." An adult in winter plumage lacks the cinnamon-rufous on the head and hind-neck, and the rufous and black bands on the fore-neck.

Nest.—"A slight hollow in the ground. Lined with leaves and stems of *Angelica archangelica*."—Stejneger.

Eggs.—Three, cream-buff to clay colour; spotted, less numerous at the smaller end, with markings of irregular size, chiefly of clove-brown, bistre, and even as light as wood-brown. The lighter markings are generally rather obscure, appearing as if embedded in the shell or as though laid on before the ground colour. Breeding-season: June (Siberia).

8. Double-banded Dotterel *Charadrius bicinctus* Jardine and Selby

bi-cinc'-tus—L., *bicinctus*, twice banded.

Distribution.—Australia (except northern Australia) and Tasmania; also occurs in New Zealand, Lord Howe Island, and Norfolk Island.

Notes.—Usually in small flocks, arriving from New Zealand during March or April, departing in October; occasionally odd pairs have been recorded during the summer months. It frequents chiefly seashores and adjoining salt marshes, and is often in the company of the Red-capped Dotterel. The call-note is a piping whistle, "Twit, twit." Food: insects, worms, and small crustaceans. An adult in winter plumage lacks the black markings on the head and the chestnut and black bands on the lower throat and breast.

Nest.—A depression in the gravel or shingle of a river-flat.

Eggs.—Three, greenish-brown, profusely sprinkled with dark brown markings. Breeding-season: August and September to December. (Breeds in New Zealand, but not in Australia.)

9. Hooded Dotterel *Charadrius cucullatus* Vieillot

cu-cul-lā'-tus—L., *cucullatus*, hooded.

Distribution.—Southern Australia and Tasmania.

Notes.—Usually in pairs or family parties, frequenting seashores. It is generally seen running along sandy beaches just clear of the waves, or among the debris left by the tides. It is an active bird and appears to be always on the move. Food: marine insects.

Nest.—A depression in the sand just above the tide mark and usually among shingly stones, shells, or seaweed.

Eggs.—Two or three, pale stone colour, covered all over, but more so at the larger end, with purplish-black and lavender markings. Breeding-season: September or October to January.

10. Red-kneed Dotterel *Erythrogonys cinctus* Gould

E-ryth'-ro-gon'-ys—Gk, *erythros*, red; Gk, *gonys*, knee; *cinc'-tus*—L., *cinctus*, banded.

Distribution.—Australia generally (except the coastal areas).

Notes.—Also called Sandpiper. Usually in pairs or small flocks, frequenting the margins of swamps, lagoons, dams, and river-flats; it is seldom observed far from water. It is always on the move, constantly running backwards and forwards, then stopping suddenly to stand erect, or, with a quick jabbing thrust, striking at the ground in pursuit of its food, which consists of insects, worms, and small crustaceans.

Nest.—A slight depression in the ground, occasionally in exposed situations in the damp soil close to water, at other times among stones some distance from water or in the shelter of a small bush or clump of grass.

Eggs.—Usually four, varying from cream to light creamy-brown, covered more or less with a network of fine wavy lines and irregular-shaped freckles, spots, and blotches of black. Breeding-season: October to December.

11. Oriental Pratincole *Glareola maldivarum* Forster

Glār-e-ōl'-a—L., *glareolus*, gravelly: *maldivarum*—of the Maldiv Islands.

Distribution.—Eastern Siberia, migrating southwards to Australia (except the south-western portion).

Notes.—Also called Little Storm-bird and Swallow Plover. Usually in flocks, arriving in Australia during December or January, departing in March or April. It frequents marshes, plains, and river-flats, and is often in the company of the Australian Pratincole. Most of its food is caught while on the wing, in a similar manner to that of Swifts. Food: insects, chiefly beetles and grasshoppers.

Nest.—A depression in the ground.

Eggs.—Two, pale stone colour, marked all over with bold markings of dark purplish-black and underlying ones of smoky-grey. Breeding-season: April; May (eastern Siberia).

12. Terek Sandpiper *Terekia cinerea* Güeldenstädt

Terekia—Terek River, flowing into the Caspian Sea: *cīn-cr'-ea*—L., *cine-reus*, ashen.

Distribution.—Northern Russia and Siberia, migrating southwards to Africa, northern Australia, and Queensland.

Notes.—A rare species, usually in small flocks, arriving in Australia during November or December, departing in March or April. It frequents chiefly seashores and adjoining marshes, and is often in the company of other Waders.

Nest.—A depression in the ground among grass.

Eggs.—Four, pale stone colour, sparingly covered all over, but more so at the larger end, with blotches of dark purplish-red and underlying ones of lavender. Breeding-season: June and July (northern Russia and Siberia).

13. Wandering Tattler *Tringa incana* Gmelin

Trīng'-a—N.L., *tringa*, from Gk, *tryngas*, a species of bird: *īn-cā'-na*—L., *incanus*, hoary.

Distribution.—Kamchatka, Aleutian Islands, and Alaska, migrating southwards to Cape York, the islands of the Pacific, and New Zealand.

Notes.—Although there is only one authentic record of the occurrence of this species in Australia, there is a probability of its being a regular visitor to our northern shores. It is usually seen in pairs or small flocks, frequenting stony beaches and rocky shores. Its flight is graceful and very rapid; its call-note is loud and harsh, almost a scream.

Nest.—A compact structure, composed principally of fine roots carefully woven together, including a number of twigs around the edges and lined with small bits of twigs and some dry leaves. Placed in a shallow depression in a gravel bar about 30 feet from the nearest water. On the

Savage River, Alaska, July, 1923, at an elevation of about 4000 feet (Olaus J. Murie).

Eggs.—Four, varying between glaucous and greenish-glaucous, spotted and blotched irregularly, rather heavily near the larger end and rather sparsely elsewhere, with dark browns, from seal brown or bone brown to burnt umber or Verona brown; there are some elongated splashes and small, inconspicuous, underlying spots of various shades of brownish-drab. Breeding-season: July, Alaska (Olaus J. Murie).

14. Grey-tailed Tattler *Tringa brevipes* Vieillot

brev'-i-pēs—L., *brevīs*, short; L., *pēs*, foot.

Distribution.—Eastern Siberia, migrating southwards to Australia.

Notes.—Also called Grey-rumped Sandpiper. Usually in flocks, arriving in Australia during September or October, departing in April or May. It is generally observed frequenting mangrove swamps, rocky seashores, sand-spits, and mud-banks, and is often in the company of other Waders.

Nest.—A depression in the ground. It breeds only in the Alpine-tundra zone of the mountains in the Verkhoyansk Ranges (67° 30' N., 134° 20' E.), towering between the basins of the Alden and Indigirka rivers. The Indigirka River is in north-east Siberia; it rises in the Stanovoi Mountains, flows W.N., and N.E. 1000 miles and enters the Arctic Ocean at 71° N., 150° E.

Eggs.—Not recorded.

15. Greenshank *Tringa nebularia* Gunnerus

neb-u-lār'-i-a—L., *nebularius*, adjective from nebula (cloudy).

Distribution.—Northern Europe and northern Asia, migrating southwards to Africa, Australia (except central Australia), and Tasmania; accidental to New Zealand.

Notes.—Usually in small flocks, arriving in Australia during September or October, departing in March or April. It frequents mud-flats, sand-spits, and salt marshes, and is often in the company of other Waders. Generally it is extremely timid and wary, and when flushed flies off to a more distant locality. Food: aquatic animals of various kinds.

Nest.—A depression in the grass.

Eggs.—Four, pale stone colour, covered with very dark red blotches and underlying markings of lavender. Breeding-season: May and June (northern Europe and northern Asia).

16. Common Sandpiper *Tringa hypoleuca* Linné

hy-po-lēuc'-a—Gk, *hypo*, under; Gk, *leucos*, white.

Distribution.—Europe and northern Asia, migrating southwards to Africa, Australia, and Tasmania.

Notes.—Also called Summer Snipe. Usually in flocks, arriving in

Australia during September or October, departing in March or April. It frequents the foreshores of inlets, beaches, and the banks of rivers, and is a fairly common species. At low tide it resorts to the uncovered beaches, flats, and rocky foreshores, often in the company of other Waders; during high tide it rests on the higher ground, mostly on rocks near the water's edge. When disturbed, it rises rapidly and flies some distance away before settling again. Its call-note is a tremulous whistle. Food: small aquatic animals.

Nest.—A depression in the grass or ground, lined with dead grass, moss, or leaves.

Eggs.—Four, greyish or light creamy-buff, covered all over with underlying spots of grey, and other markings, few and irregular, of deep brown or coffee-brown. Breeding-season: June and July (Europe and northern Asia).

17. Sanderling *Crocethia alba* Vroeg

Cro-cē-thī'-a—Gk, *croce*, shore; Gk, *thio* (*theo*), I run: *al'-ba*—L., *albus*, white.

Distribution.—Arctic regions, migrating southwards to Patagonia, South America, Africa, and Australia; accidental to New Zealand.

Notes.—Usually in small flocks, frequenting the sandy seashores, where it casually feeds in the company of other Waders. It has been recorded in Australia during the greater part of the year, an important fact, coinciding with similar records of this species in other parts of the world.

Nest.—A depression in the ground.

Eggs.—Four, greenish-drab, spotted and blotched with reddish-grey, brown, and blackish-brown markings. Breeding-season: not recorded (breeds in the Arctic regions).

18. Red-necked Stint *Erolia ruficollis* Pallas

E-rō'-li-a—derivation unknown: *rū-fi-coll'-is*—L., *rufus*, red; L., *collum*, neck.

Distribution.—North-eastern Siberia, migrating southwards to India, Australia, Tasmania, and New Zealand.

Notes.—Also called Little Stint, Red-necked Sandpiper, Land-snipe, and Little Dunlin. Usually in flocks, arriving in southern Australia about July, departing in February. It frequents open marshy swamp-lands and sea beaches, where it feeds on small marine crustaceans and aquatic insects and worms. An adult in summer plumage has the entire head and neck rufous and the back and scapulars rufous with dark centres.

Nest.—A cavity on a small mound of tundra lined with dry willow leaves (W. Sprague Brooks, Providence Bay, north-eastern Siberia).

Eggs.—Three and four; said to resemble those of the Spoonbill Sandpiper *Eurynorhynchus pygmeus* Linnæus (Joseph Dixon, 1918). Breeding-season: June, north-eastern Siberia (W. Sprague Brooks).

19. Curlew-sandpiper *Erolia testacea* Vroeg

tes-tă'-ce-a—L., *testaceus*, relating to tiles, i.e., in colour pattern.

Distribution.—Northern Siberia, migrating southwards to Africa, Australia, and Tasmania; accidental to New Zealand.

Notes.—Also called Pygmy Curlew, Curlew-stint, and Curley-sandpiper. Usually in small flocks, frequenting the seashores and adjacent marshes. This species has been recorded in Australia during almost every month of the year. It procures its food on sandy or muddy shores and flats, usually making its appearance on the feeding-grounds as the tide begins to fall, and following it outwards. At high tide it departs for higher ground or adjacent marshes, where it rests until the ebb commences again. Food: small crustaceans and worms.

Nest.—A depression in the ground.

Eggs.—Four, pale greenish-grey, spotted and blotched with rich deep rufous-brown markings and with a few underlying spots of purplish-grey. Breeding-season: June (northern Siberia).

20. Sharp-tailed Sandpiper *Erolia acuminata* Horsfield

ac-ă'-min-ă'-ta—L., *acuminatus*, pointed, referring to the tail-feathers.

Distribution.—North-eastern Siberia and Alaska, migrating southwards to British Columbia, Hawaii, Australia, Tasmania, and New Zealand.

Notes.—Also called Sharp-tailed Stint, Marsh Sandpiper, Siberian Sandpiper, Asiatic Sandpiper, Pectoral Sandpiper, and Marsh Tringa. Usually in flocks, arriving in southern Australia during September, departing in April or May. It frequents margins of salt marshes, mud and sand-flats of inlets and rivers, and occasionally sea beaches; at times it is plentiful in inland areas on the banks of swamps, rivers, and dams. When flushed, it rises swiftly, and flies rapidly with an occasional turn; it also has the towering flight of Snipe. Its call-note is a piping whistle. Food: aquatic insects, small crustaceans, and worms.

Nest.—Not recorded.

Eggs.—Not recorded. Breeds in the north-eastern part of Asia—so far as known, in north-eastern Siberia, migrating southwards during the northern winter to New Guinea, Tonga Islands, Australia, Lord Howe Island and New Zealand.

21. Grey Plover *Squatarola squatarola* Linné

Squat-ar'-o-la—N.L. and Italian for this plover.

Distribution.—Arctic regions, migrating to Peru, Brazil, Africa, Australia, and Tasmania.

Notes.—Also called Black-bellied Plover, Grey Sandpiper, and May-cock. Usually singly, in pairs, or in small flocks, arriving in Australia during September, departing in March or April. It frequents chiefly the seashore and contiguous salt marshes or grassy flats; this species is very

timid and wary. Its call-note is a piping whistle, not unlike that of the Golden Plover, a species that it resembles in habits and economy.

Nest.—A depression in the earth, lined with dry leaves and lichen.

Eggs.—Four, yellowish-grey to brownish-yellow, covered with dark brown spots. Breeding-season: June and July (breeds in the Arctic regions).

22. Golden Plover *Pluvialis dominicus* P. L. S. Müller

Plu-vi-ā-lis—L., *pluvialis*, belonging to rain (i.e., spotted): *dominicus*—island of San Domingo, West Indies.

Distribution.—North-eastern Siberia and Alaska, migrating to the Argentina, the islands of the Pacific Ocean, New Zealand, Australia, and Tasmania.

Notes.—Also called Eastern Golden Plover, Pacific Golden Plover, Lesser Golden Plover, and Australian Golden Plover. Usually in flocks, arriving in southern Australia during September and October, departing in March or April. It frequents sea beaches, mud and sand-flats of inlets and rivers, salt marshes, and grassy flats. During low tide it feeds along the mud and sand-flats, leaving for the marshes and grassy flats as the tide rises. It is much tamer than the other species of Waders, and is common along the foreshores of our harbours. Food: insects, small crustaceans, and worms.

Nest.—A mere hollow in the ground upon a piece of turfy land, overgrown with moss and lichen, and lined with broken stalks of reindeer moss.

Eggs.—Four, pale buff, spotted and blotched with rich purplish-brown markings, with a few underlying ones of inky-grey. Breeding-season: June and July (north-eastern Siberia and Alaska).

23. Bar-tailed Godwit *Limosa lapponica* Linné

Līm-ōs'-a—L., *limosus*, marshy: *lapponica*—of Lapland.

Distribution.—Northern Europe and northern Asia, migrating to tropical Africa, northern India, Malaysia, Australia, Tasmania, New Zealand, and the Pacific Islands.

Notes.—Also called Barred-rumped Godwit, Pacific Godwit, and Kuaka. Usually in small flocks, arriving in Australia during October, departing in April. It frequents chiefly the mud and sand-flats of inlets or rivers, also the seashore, and is often in the company of other Waders. It is exceptionally wary and by no means plentiful. Food: small crustaceans and worms.

Nest.—A depression in the grass.

Eggs.—Four, deep greenish drab to pale drab, covered with irregular blotches and spots of pale umber-brown. Breeding-season: June and July (northern Europe and northern Asia).

24. Black-tailed Godwit *Limosa limosa* Linné

līm-ōs'-a—L., *limosus*, marshy.

Distribution.—Northern Europe and northern Asia, migrating southwards to northern Africa, India, Australia, and Tasmania; accidental to New Zealand.

Notes.—Usually singly, in pairs, or very small flocks, arriving in Australia during October, departing in March or April. It frequents chiefly mud and sand-flats near the entrance of inlets or rivers and the margins of shallow salt marshes; it is generally in the company of the Bar-tailed Godwit—a species very similar to its black-tailed relative. The latter, however, has a more upright carriage, longer legs, and white lower rump. In habits and economy it resembles the Bar-tailed Godwit, but is much rarer than that species.

Nest.—A depression in the grass.

Eggs.—Four, pale olive-green to pale yellowish, covered all over with small spots of a more or less olive-brown, some markings on the larger end being of an indistinct olive-grey to reddish-grey. Breeding-season: June? and July (northern Europe and northern Asia).

25. Curlew *Numenius cyanopus* Vieillot

Nu-mēn'-i-us—Gk, *numenios*, kind of curlew, from Gk, *neos*, new; Gk, *mene*, moon (i.e. shape of bill): *cŷ'-an-o-pus*—Gk, *cyanos*, blue; Gk, *pous* (*pus*), foot.

Distribution.—Eastern Siberia, migrating southwards to Australia and Tasmania; accidental to New Zealand.

Notes.—Also called Sea-curlew, Australian Curlew, and Curlew-whelp. Usually in flocks, arriving in Australia during September, departing in March or April; odd birds, however, remain throughout the year. It frequents sea beaches or mud and sand-flats near the entrance of inlets and rivers. At all times it is exceptionally timid and wary, generally keeping far out on the flats or beaches. Its call resembles "Ker-loo," or "Kor-lew," and is often uttered at night or when alarmed. Food: small crustaceans and worms.

Nest.—A hollow scooped in the ground, untidily lined with grass or leaves, and placed among low bushes or rushes; generally high, open ground is selected as a nesting-site.

Eggs.—Four, dull olive-green, blotched and spotted with greenish-brown markings. Breeding-season: June and July (eastern Siberia).

26. Whimbrel *Numenius phæopus* Linné

phæ'-o-pus—Gk, *phaios*, grey; Gk, *pous* (*pus*), foot.

Distribution.—Northern Europe and northern Asia, migrating southwards to Africa, Australia, and Tasmania; accidental to New Zealand.

Notes.—Also called Jack Curlew, Australian Whimbrel, and May-fowl. Usually in flocks, arriving in Australia during September or October, departing in March or April. It frequents sea beaches, mud and

sand-flats of tidal waters, or salt marshes, often in the company of the Curlew. Its call-note is a high, clear, short whistle, repeated seven or eight times in a descending scale of semitones. Food: small crustaceans, worms, and aquatic insects.

Nest.—A hollow scooped in the ground, scantily lined with grass, and generally placed on a hummock or mound, mostly a bare one, in an exposed situation.

Eggs.—Four, pale olive, blotched and spotted with greenish-brown and brown markings. Breeding-season: June and July (northern Europe and northern Asia).

27. Little Whimbrel *Mesoscolopax minutus* Gould

Mes-o-scol'-o-pax—Gk, *mesos*, intermediate; Gk, *scolopax*, snipe: *min-ū'-tus*—L., *minutus*, little.

Distribution.—Eastern Siberia, migrating southwards to Australia and Tasmania; accidental to New Zealand.

Notes.—Usually in flocks, arriving in Australia during September or October, departing in March or April. For the most part it frequents open plains and the margins of swamps and marshes, but is also observed on mud and sand-flats of tidal waters. When disturbed, it utters a loud "Teo, teo," more like a wail than a whistle. Food: insects (chiefly grasshoppers), worms, and seeds.

Nest.—Not recorded.

Eggs.—Not recorded. Breeds evidently on Upper Yana (near Verkhoyansk, about $67\frac{1}{2}^{\circ}$ N.) and middle Lena; not farther south than 59° N.

28. Broad-billed Sandpiper *Limicola falcinella* Brunnich

Li-mic'-o-la—L., *limus*, marsh; L., *colere*, to inhabit: *fal-cin-ell'-a*—L., *falcinella*, little scythe.

Distribution.—Arctic regions, Europe, and Asia, migrating southwards to northern Africa and China; accidental to the Molucca Islands and Australia.

Notes.—There are few records of the occurrence of this species in Australia, and nothing has been published concerning its habits while wintering here. It was first observed in north-western Australia; later in the Northern Territory; and there is a specimen which was collected at Botany Bay in December 1916. Perhaps it visits us annually, but has been overlooked. It frequents fresh and salt-water marshes as well as the seashore, and when on migration usually travels in small flocks.

Nest.—A hollow (rather deep for a Wader) scooped in the ground, and lined with dry grass. Generally placed on a low sedge-clothed hummock, in an open grassy part of a mountain marsh.

Eggs.—Four, stone-buff to brown, mottled and spotted with "neutral tint" and dark brown markings. Breeding-season: June (breeds in the Arctic regions, Europe, and Asia).

29. Turnstone *Arenaria interpres* Linné

Ar-ēn-ār'-ia—L., *arenarius*, belonging to sand: *in'-ter-prēs*—L., *interpres*, go between.

Distribution.—Arctic regions, migrating southwards to Chile, Africa, Australia, Tasmania, and New Zealand.

Notes.—Also called Sea-dotterel, Beach-bird, Calico-bird, and Eastern Turnstone. Usually in small flocks, arriving in Australia during September or October, departing in March or April; odd pairs remain throughout the year. It frequents sea beaches, feeding upon small marine animals at low tide, and resting on nearby rocks when the tide is high. It may be identified from the other smaller Waders by its habit of turning over small stones and shells with its bill.

Nest.—A slight depression in the ground, sometimes lined with grass.

Eggs.—Four, pale green, covered all over, but more so on the larger end, with irregular-shaped markings of olive-brown and lavender. Breeding-season: June and July (breeds in the Arctic regions).

30. Beach Stone-curlew *Orthorhamphus magnirostris* Vieillot

Or-tho-rhamph'-us—Gk, *orthos*, straight; Gk, *rhamphos*, bill: *mag-ni-ros'-tris*—L., *magnus*, great; L., *rostrum*, bill.

Distribution.—Northern Australia, from Shark Bay (Western Australia) to Moreton Bay (Queensland); also occurs in the Andaman Islands, Malay Archipelago, Borneo, New Guinea, and New Caledonia.

Notes.—Also called Large-billed Shore-plover and Australian Long-billed Plover. Usually singly or in pairs, frequenting mud and sandy seashores of the mainland or islands off the coast. Its call is very similar to that of the Eastern Stone-curlew, but harsher in tone. Food: small crustaceans and shell-fish.

Nest.—None made, the eggs being laid on the sand, generally just above high-tide mark.

Eggs.—One or two, creamy-white, covered with irregular-shaped streaks and blotches of dark olive-brown; some of the markings are large and bold, and others mere blotches. Breeding-season: October.

PLATE XXXV

BIRDS OF THE OCEAN AND SEASHORE

1. Wilson's Storm-petrel *Oceanites oceanicus* Kuhl

Ō-ce-an-ī'-tes—Gk, *oceanites*, son of Ocean: *ō-ce-an'-ic-us*—L., *oceanicus*, of the ocean.

Distribution.—Southern oceans, to Australia, Tasmania, New Zealand, and New Caledonia, ranging north to California, Labrador, the British Isles, and India.

Notes.—Also called Mother Carey's Chicken, Yellow-webbed Storm-petrel, and Flat-clawed Storm-petrel. Usually in flocks, generally seen flying close to the surface of the water, and occasionally to and fro across the wake of a ship. Its flight is usually very erratic, somewhat like that of a butterfly, and it often aids its progress by patting the water with its feet, bounding along with a series of leaps. Its food consists chiefly of small plankton organisms procured from the surface of the water, the fat from dead whales or seals, and refuse from ships' galleys. Breeds in colonies in Antarctica, on islets off Cape Horn, on the South Shetlands, South Orkneys, and South Georgia, and Kerguelen and Heard Islands.

Nest.—In a chamber at the end of a tunnel; lined with feathers.

Egg.—Dull white, sometimes sparingly dotted with reddish spots; occasionally these spots form a ring round the larger end. Breeding-season: December to February.

2. Grey-backed Storm-petrel *Garrodia nereis* Gould

Garrodia—A. H. Garrod (1846-1879), anatomist and ornithologist. Prosecutor to the Zoological Society, London: *nē'-re-īs*—Gk, *nereis*, Nereid, sea-nymph.

Distribution.—Southern oceans, to South Georgia, the Falkland Islands, New Zealand, Tasmania, and south-eastern Australia.

Notes.—Also called Mother Carey's Chicken. Usually in flocks; it is similar in habits and economy to Wilson's Storm-petrel. Breeds in colonies on South Georgia, the Falkland Islands, Kerguelen Island, and New Zealand, and the Chatham, Bounty, and Auckland Islands.

Nest.—In a chamber at the end of a tunnel. The burrow is about 18 inches in length, and resembles a rat-hole.

Egg.—White, covered with fine deep reddish-brown and lavender dots at the larger end, and with a few reddish ones sparingly distributed over the rest of the surface. Breeding-season: November to January.

3. White-faced Storm-petrel *Pelagodroma marina* Latham

Pel'-a-go-drom'-a—Gk, *pelagodromos*, sea-running: *mar-i'-na*—L., *marinus*, of the sea.

Distribution.—Atlantic, Indian, and South Pacific Oceans.

Notes.—Also called White-breasted Storm-petrel, Frigate-petrel, and Mother Carey's Chicken. Usually in flocks, frequenting the seas of south-western, south-eastern, and southern Australia, and Tasmania. It is similar in habits to the other Storm-petrels, from which it may be distinguished by its white under-surface. Breeds in colonies on islands along the coasts of its Australian range; also on the North Island of New Zealand, the Auckland, Chatham, and Kermadec Islands, Tristan da Cunha, and the Salvage, Canary, and Cape Verde Islands.

Nest.—In a chamber at the end of a burrow.

Egg.—White, occasionally with the larger end thickly speckled with reddish spots, and at times speckled all over with the same colour intermingled with a few blackish streaks about the larger end. Breeding-season: October to December (southern hemisphere); March to April (northern hemisphere).

4. Gould's Storm-petrel *Fregatta tropica* Gould

Frē'-get'-ta—N.L., *fregatta*, altered from *fregata*, a frigate: *trop'-i-ca*—L., *tropicus*, tropical.

Distribution.—Southern oceans, north to the tropics.

Notes.—Also called Black-bellied Storm-petrel and Mother Carey's Chicken. Usually in flocks, frequenting the seas of southern Australia and Tasmania. It is similar in habits and economy to the other Storm-petrels. Breeds in colonies on Tristan da Cunha, the South Shetlands, South Orkneys, Falkland Islands, and South Georgia, and Kerguelen, the Crozet, St Paul, Amsterdam, and Bounty Islands.

Nest.—In a crevice among rocks.

Egg.—Dull white, minutely and sparingly dotted all over with small pink spots. Breeding-season: December.

5. Little Shearwater *Puffinus assimilis* Gould

Puff'-in-us—N.L., *puffinus*, puffin: *as-sim'-i-lis*—L., *assimilis*, similar.

Distribution.—Atlantic, Indian, and Pacific Oceans, chiefly in tropical or sub-tropical latitudes, occasionally ranging farther north or south.

Notes.—Also called Allied Shearwater, Allied Petrel, and Dusky Shearwater. Usually in flocks, frequenting the seas of south-western Australia. During the day it does not range far from its breeding-ground, either resting on the surface of the water, or flying around seeking food, which consists of small fish, squids, crustaceans, and other floating or surface-living animals. Breeds in colonies on Lord Howe and Norfolk Islands; also on islands elsewhere in the Pacific, Indian, and Atlantic Oceans.

Nest.—In a natural crevice or in a shallow burrow.

Egg.—Pure white. Breeding-season: July and August (Norfolk Island); throughout the year in most localities.

6. Fluttering Shearwater *Puffinus gavia* Forster

gav'-i-a—N.L., *gavia*, a kind of gull.

Distribution.—The seas of New Zealand, ranging to south-eastern and southern Australia.

Notes.—Also called Brown-backed Petrel. Usually in flocks, frequenting chiefly the seas off the south coast of New South Wales. It is similar in habits and economy to the Little Shearwater. Breeds on both islands of New Zealand and on Snares Island.

Nest.—In a chamber at the end of a burrow; lined with a few leaves.

Egg.—Pure white. Breeding-season: October.

7. Great-winged Petrel *Pterodroma macroptera* Smith

Pter'-o-drom'-a—Gk, *pteron*, wing; Gk, *dromos*, running: *mac-rop'-ter-a*—Gk, *macros*, large; Gk, *pteron*, wing.

Distribution.—Southern oceans, between latitudes 50°S. and 30°S.

Notes.—Also called Grey-faced Petrel. Usually in flocks, frequenting the seas off the south-western coast of Australia. It is similar in habits and economy to the Shearwaters. Breeds in colonies on islands off the south coast of Western Australia; also on the North Island of New Zealand, Tristan da Cunha, and Kerguelen and the Crozet Islands.

Nest.—In a large chamber at the end of a burrow; lined with a few leaves and grass.

Egg.—Pure white. Breeding-season: July to September.

8. Soft-plumaged Petrel *Pterodroma mollis* Gould

mol'-lis—L., *mollis*, soft.

Distribution.—Atlantic and Indian Oceans, to latitude 50°S.

Notes.—A rare visitor to the seas of south-western Australia. It is similar in habits and economy to the Soft-plumaged Petrel. Breeds on Madeira and Cape Verde Islands, Tristan da Cunha, and Gough, Kerguelen, and St Paul Islands.

Nest.—In a chamber at the end of a burrow.

Egg.—White. Breeding-season: June, July, and October (northern hemisphere).

9. White-headed Petrel *Pterodroma lessoni* Garnot

lessoni—R. P. Lesson, French ornithologist (1794-1849).

Distribution.—Southern oceans, from Antarctica to about latitude 33° S.

Notes.—Frequents the seas of south-western and southern Australia and Tasmania. It is similar in habits and economy to the other members of the genus. Breeds in colonies on the Kerguelen, Bounty, Auckland, and Antipodes Islands.

Nest.—In a large chamber at the end of a burrow.

Egg.—White. Breeding-season: December and January.

10. White-winged Petrel *Pterodroma leucoptera* Gould

lêuc-op'-ter-a—Gk, *leucos*, white; Gk, *pteron*, wing.

Distribution.—Seas of New South Wales.

Notes.—Also called Gould's Petrel. It breeds on Cabbage-tree Island, off Port Stephens. This species does not make a burrow, otherwise it is similar in habits and economy to the other members of the genus. It is closely related to a form (*P.l.masafuera*) which ranges to the coast of Chile, and breeds on the Fiji Islands and Masafuera (Juan Fernandez).

Nest.—A depression in the ground or a crevice among loose stones; lined with a small quantity of broken pieces of dead fronds of the cabbage-palm.

Egg.—Soft chalky-white. Breeding-season: November and December.

11. Cape Petrel *Daption capense* Linné

Dap'-ti-on—anagram of *pintado*, a Portuguese word for painted: *capense*—L., *capensis*, of the Cape (of Good Hope).

Distribution.—Southern oceans, from Antarctica north to Brazil, Angola, Mozambique, Australia, the Marquesas Islands, and Peru, occasionally ranging farther north to Mexico, Ceylon, the United States, and Europe.

Notes.—Also called Pintado Petrel, Black-and-white Petrel, Spotted Petrel, Pied Petrel, and Cape Pigeon. Usually in flocks, frequenting the seas of southern Australia. This bird is commonly seen following ships, and is easily distinguished by its boldly mottled plumage. Food: similar to that of other Petrels. Breeds in colonies in Antarctica, and on the South Shetlands, South Orkneys, South Georgia, and Kerguelen Island.

Nest.—A slight structure, composed of a few small stones and a little earth, placed on a ledge of a cliff.

Egg.—Pure white. Breeding-season: November to May.

12. Blue Petrel *Halobæna cærulea* Gmelin

Hal-o-ban'-a—Gk, *hals*, sea; Gk, *bainein*, to walk: *cæ-rul'-e-a*—L., *cæruleus*, blue.

Distribution.—Southern oceans, from Antarctica north to latitude 40°S., and occasionally to Tristan da Cunha, the Cape of Good Hope, southern Australia, New Zealand, and the Fiji Islands.

Notes.—A rare visitor to the seas of southern Australia; very little is known of its habits. When on the wing it is difficult to distinguish from the Prions. Breeds on the Falkland Islands and Kerguelen Island.

Nest.—In a large cavity at the end of a burrow, lined with fine root-fibres, twigs, ferns, or leaves. Burrows are generally made beneath plants growing on hillsides, and often connect and form other entrances to the nesting-chamber.

Egg.—White. Breeding-season: October and November.

13. Broad-billed Prion *Pachyptila vittata* Gmelin

Pach-y-ptil'-a—Gk, *pachys*, thick; Gk, *ptilon*, feather: *vit-tā'-ta*—L., *vittatus*, banded.

Distribution.—Southern oceans, between latitudes 60°S. and 40°S., occasionally north to Madagascar and Réunion Island.

Notes.—Also called Dove-petrel, Whale-bird, and Ice-bird. Usually in flocks, frequenting the seas of southern Australia and Tasmania. It is usually seen in flocks flying swiftly over the surface of the water. Occasionally during stormy weather numbers of this species are washed up on the beaches along the coast of New South Wales. Its food consists chiefly of plankton organisms, procured from the surface of the sea. Breeds in colonies on the Chatham Islands and on South Georgia, Tristan da Cunha, and Gough, the Crozet, Marion, and St Paul Islands.

Nest.—In a chamber hollowed out at the end of a rat-like burrow made in slanting soil; in a natural cavity in rocks; or under densely matted stems and roots of pig-face weed.

Egg.—White. Breeding-season: September and October, and January.

14. Fairy Prion *Pachyptila turtur* Kuhl

tur'-tur—L., *turtur*, dove.

Distribution.—Southern oceans, between latitudes 60°S. and 35°S., occasionally north to Madeira.

Notes.—Also called Dove-petrel, Whale-bird, and Short-billed Prion. Usually in flocks, frequenting the seas of southern and south-eastern Australia, and Tasmania. It is similar in habits and economy to the other species of Prions. Breeds in colonies on islands in Bass Strait and on the Kerguelen, Chatham, Bounty, and Antipodes Islands.

Nest.—In a natural cavity in rocks or under densely matted stems and roots of pig-face weed.

Egg.—White. Breeding-season: October to December.

15. Dove-prion *Pachyptila desolata* Gmelin

desolata—Isle of Desolation, now Kerguelen Island.

Distribution.—Southern oceans, between latitudes 60°S. and 35°S.; occasionally north to the Malay Archipelago.

Notes.—Also called Banks's Petrel and Whale-bird. Usually in flocks, frequenting the seas of southern Australia, and Tasmania. It is similar in habits and economy to the other species of Prions. Breeds in colonies on Lawrence Rocks, Portland, Victoria, also on the South Orkneys, South Georgia, and Kerguelen, Auckland, Antipodes, and Macquarie Islands.

Nest.—In a cavity at the end of a burrow.

Egg.—White. Breeding-season: November to February.

16. Diving-petrel *Pelecanoides urinatrix* Gmelin

Pel'-e-can-ōid'-ēs—Gk, *pelican*, pelican; *-oides*, from Gk, *eidos*, form — like: *ū-rī-nā'-trix*, L., *urinatrix*, diver (feminine form).

Distribution.—Southern oceans, between latitudes 35°S. and 55°S., ranging from the islands of Bass Strait, and the coasts of Victoria, Tasmania, and New Zealand, to the coast of South America.

Notes.—Also called Smaller Diving-petrel and Common Diving-petrel. Usually seen singly or in small scattered flocks, resting on the surface of the water, or diving for its food, which consists of small fishes, crustaceans, and other marine organisms. Breeds in colonies on islands of Bass Strait, on the coast of New Zealand, and on the Chatham, Bounty, Antipodes, Snares, and Auckland Islands, Tristan da Cunha, and Gough and Falkland Islands.

Nest.—In a cavity at the end of a crooked burrow.

Egg.—White. Breeding-season: July to November.

17. Caspian Tern *Hydroprogne caspia* Pallas

Hŷ-dro-prog'-ne—water-swallow, from Gk, *hydor*, water; and *Progne* or *Procne*, a daughter of Pandion, King of Athens, changed by the gods into a swallow (mythology): *caspia*—of the Caspian Sea.

Distribution.—Australia and Tasmania; also occurs in North America, Europe, Asia, Africa, and New Zealand.

Notes.—Usually in pairs, occasionally in small flocks, frequenting chiefly the coasts and adjacent islands. It is easily distinguished by its large size, large, stout, red bill, and black forehead and crown. Like the other species of Terns it feeds almost entirely on small fishes, which it obtains when they are near the surface by plunging down from the air. In Australia this species does not breed in colonies, as do most other Terns, but generally in isolated pairs. Breeds usually on islands, and occasionally on headlands along the coast. It is one of the few Terns that range to inland lakes.

Nest.—A depression in the sand.

Eggs.—Two, sometimes three, dull yellowish-stone or greenish-grey, covered with irregular-shaped freckles, spots, and blotches of umber and blackish-brown, with a few underlying markings of dull grey or inky-grey. On some eggs the markings are larger and more numerous at the larger end, and on others the underlying markings are plentifully distributed over the whole surface. Breeding-season: October to February (southern Australia and Tasmania); March, May, August, September, and November (north-western Australia).

18. White-fronted Tern *Sterna striata* Gmelin

Stern'-a—N.L., *sterna*, gull: *stri-ā'-ta*—L., *striatus*, striped.

Distribution.—The eastern coast of Australia, and Tasmania; also occurs in the Molucca Islands, New Zealand, and Auckland, Campbell, Chatham, Fiji, and Tonga Islands.

Notes.—Also called Southern White-fronted Tern. This species is not common, generally being seen in small flocks flying over the waters of harbours and bays; similar in habits and economy to the other species of Terns. It breeds in colonies on islands off the south-eastern coast of Tasmania, on Auckland and Chatham Islands, and in New Zealand.

Nest.—A depression in the sand or gravel; generally on beaches, just above high-water mark.

Eggs.—Two, varying from faint yellowish-stone to very pale greenish-grey or pale coffee-brown, covered with irregular-shaped dots, spots, and blotches, and a few hair-like lines of sepia and brownish-black, and underlying markings of grey. The markings vary considerably, being either evenly distributed or large and confluent. Breeding-season: November and December.

19. Crested Tern *Sterna bergii* Lichtenstein

bergii—C. H. Bergius, Swedish scientist.

Distribution.—Indian and western Pacific Oceans, from the Cape of Good Hope along eastern Africa to the Red Sea, southern Asia to Japan and the Hawaiian Islands, and to the Fiji Islands, Australia, and Tasmania.

Notes.—Also called Swift Tern, Ruppell Tern, Bass Strait Tern, Torres Strait Tern, and Village Blacksmith. This is the commonest Tern seen on the coasts and inlets of Australia and Tasmania, and next to the Caspian Tern is the largest species inhabiting our seas. It is similar in habits and economy to the other species of Terns. Breeds in large colonies on islands off the coasts throughout its range.

Nest.—A depression in the sand or earth.

Eggs.—One, occasionally two, light to dark stone, boldly spotted and blotched with rich umber and brownish-black, and underlying markings of pale lavender. The eggs vary considerably in the ground colour and the shape and colour of the markings, the egg described above being perhaps the commonest type. Breeding-season: October to January (Australia and Tasmania).

20. Lesser Crested Tern *Sterna bengalensis* Lesson

bengalensis—of the Bay of Bengal.

Distribution.—Mediterranean Sea, Red Sea, eastern coast of Africa to Durban, Madagascar, and islands of the Indian Ocean, Persian Gulf, Arabian Sea, Bay of Bengal, Malay Archipelago, and China, to the Aru Islands and northern Australia.

Notes.—This species is much shyer than the other species of Terns, otherwise it is similar to them in habits and economy. It may be distinguished from the Crested Tern by its smaller size, orange-yellow bill, and black forehead. Breeds in colonies on islands off the coasts throughout its range.

Nest.—A depression in the ground; generally on bare ground surrounded with herbage.

Egg.—One, varying from white to reddish-white, covered with evenly distributed dots, spots and blotches of purplish and reddish-brown and underlying markings of grey. The markings vary considerably in shape and colour, some eggs being sparingly marked, while others have the markings chiefly about the larger end. Breeding-season: May to November.

21. Little Tern *Sterna albifrons* Vroeg

al'-bi-frons—L., *albus*, white; L., *frons*, forehead.

Distribution.—Europe, Africa, and southern Asia, to China and northern and eastern Australia (from Derby, north-western Australia, to Mallacoota Inlet, Victoria).

Notes.—Also called White-shafted Ternlet, Black-lored Tern, and Sea-swallow. Usually in flocks, frequenting chiefly inlets and sea beaches. Sand-spits near the entrance of inlets appear to be its favourite nesting-sites, and it also breeds on beaches of islands near the coast-line.

Nest.—A depression in the sand; generally on sand-spits or beaches, just above high-water mark.

Eggs.—Usually two, varying from dull white or creamy-white to stone-grey or pale coffee-brown, with dots, spots, small penumbral blotches of blackish-brown, umber, and dark slate-grey, and underlying markings of pale grey. Breeding-season: October to January or February.

22. Fairy Tern *Sterna nereis* Gould

ně'-re-is—Gk, *nereis*, Nereid, sea-nymph.

Distribution.—Western and southern coasts of Australia (from Broome to Melbourne), Tasmania, New Caledonia, and New Zealand.

Notes.—Also called White-faced Ternlet, Little Tern, and Sea-swallow. It is similar in habits and economy to the Little Tern, from which it may be distinguished by its slightly larger size, paler upper-parts, less black before the eye, and bright yellow bill. Breeds in colonies in similar situations to those selected by the Little Tern.

Nest.—A depression in the sand.

Eggs.—Usually two, very similar to those of the Little Tern. Breeding-season: November to January or February.

23. Black-naped Tern *Sterna sumatrana* Raffles

sumatrana—of Sumatra.

Distribution.—Tropical Indian and Pacific Oceans, from the Andamans and Malay Archipelago to China, northern Australia, New Caledonia, and the Fiji Islands.

Notes.—Usually in pairs, or fishing in association with Noddies and Bridled Terns, frequenting the islands lying between the Great Barrier



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Reef and the north-eastern coast of Queensland and those of Torres Strait. It is similar in habits and economy to the other species of Terns. Breeds in colonies on coral islands throughout its range, and often in association with the Roseate Tern.

Nest.—A depression in coral fragments or in the sand; generally placed just above high-water mark.

Eggs.—Usually two, white or pale creamy-white, over which are distributed irregular-shaped freckles, spots, and blotches of brownish, reddish, or purplish-black, purplish-grey, or dark umber, with underlying markings of lavender. The markings vary considerably in shape, colour, and distribution. Breeding-season: September to December (north-eastern Australia).

24. Sooty Tern *Sterna fuscata* Linné

fus-cā'-ta—L., *fuscatus*, darkened.

Distribution.—The coast of mid-western to northern and eastern Australia (as far south as New South Wales); occurs generally throughout tropical and sub-tropical seas.

Notes.—Also called Wide-awake Tern, Whale-bird, and Egg-bird.. Usually in large flocks, often in company with other species of Terns, frequenting chiefly the seas in the vicinity of islands on which it breeds.. Breeds in immense colonies on islands throughout its range. Immature-birds have the feathers sooty-brown above, the mantle being tipped with white and the under-parts lighter than in the adult.

Nest.—The egg may be deposited on the bare ground or grass, under the shelter of a tussock of grass, or exposed on earth, sandy soil, or bare rock.

Egg.—One, varying considerably in colour and markings, the commonest being dull white or faint reddish-white, spotted, freckled, or blotched, more or less over the entire surface, with different shades of red, reddish-brown, and purplish-red markings. Breeding-season: October to January; throughout the year in different localities.

25. Bridled Tern *Sterna anætheta* Scopoli

an-æ-thē'-ta—Gk, *anaisthetos*, without sense.

Distribution.—The coasts of Western Australia, northern Australia, and eastern Australia, to as far south as the Bunker Group and Lady Elliott Island; occurs generally throughout tropical and sub-tropical seas.

Notes.—Also called Brown-winged Tern, Panayan Tern, Smaller Sooty Tern, and Dog Tern. Usually in flocks, frequenting the seas in the vicinity of islands on which it breeds; similar in habits and economy to the other species of Terns. Its note is somewhat like the "yap-yapping" of a puppy, hence the local name of Dog Tern.

Nest.—A depression scraped in the sand, well concealed under a tussock of grass; sometimes in a crevice between rocks, or under bushes.

Egg.—One, varying considerably in colour and markings, a common type being dull white uniformly covered with dots, freckles, spots, and a few irregular-shaped blotches of reddish-purple and faint underlying markings of dull purplish-grey. Breeding-season: September to January (Australia).

26. Noddy *Anous stolidus* Linné

An'-ōūs—Gk, *anous*, senseless: *stol'-i-dus*—L., *stolidus*, stupid.

Distribution.—The coast of mid-western, northern, and north-eastern Australia (Great Barrier Reef); occurs in tropical and sub-tropical seas (except the west coast of South America), occasionally ranging to Bermuda and the British Isles.

Notes.—Also called Common Noddy. Usually in immense flocks frequenting the seas in the vicinity of its breeding-places. It procures its food, consisting of small fishes, squids, and other marine animals, mostly from the surface of the open seas beyond the reefs, rarely fishing on the calm waters inside. Breeds in very large colonies on islands and reefs throughout its range.

Nest.—A flat structure, composed of seaweed and dried grass, loosely packed together, with a slight depression in the centre; nearly always lined with small sea-shells. Placed on the ground, on grass, or upon a low shrubby bush.

Egg.—One, varying considerably in colour, shape, and the distribution of the markings, a common type being dull white or buffy-white, spotted and blotched, chiefly at the larger end, with different shades of purplish-red and purplish-brown, and smaller underlying markings of dull grey. Breeding-season: July to January (Australia).

27. Lesser Noddy *Anous tenuirostris* Temminck

ten-u-i-roś'-tris—L., *tenuis*, slender; L., *rostrum*, bill.

Distribution.—South-western Australia; occurs generally in the Indian Ocean.

Notes.—Usually in very large flocks, frequenting chiefly the seas in the vicinity of the Houtman Abrolhos Islands, the only known breeding-place of this species in Australia, although it breeds on the Seychelle Islands. It is similar in habits and economy to the Noddy, from which it may be distinguished by its smaller size, longer bill, and almost white cap.

Nest.—A loosely made structure, composed of seaweed, placed, without any regard to shape, across a branch of a mangrove tree; often long pieces of seaweed hang down beneath the nest giving it the appearance of being a much more substantial structure than it really is. Nests are built as close together as possible among the branches of mangrove trees, at heights up to 10 feet from the ground.

Egg.—One, varying considerably in colour, form, and the distribution of the markings, a common type being a faint reddish-white, buffy-white,

or creamy-buff, over which are distributed irregular-shaped spots and blotches of reddish-brown or purplish-red, and fainter underlying markings of lavender or grey. Breeding-season: September to December.

28. White-capped Noddy *Anous minutus* Boie

min-ū'-tus—L., *minutus*, little.

Distribution.—The coast of Northern Territory and Queensland; occurs generally in the tropical Atlantic and Pacific Oceans.

Notes.—Usually in very large flocks, frequenting the seas in the vicinity of its island haunts. During the night it rests in trees, leaving at daybreak for feeding-places on the surface of the open seas beyond the reefs. It is similar in habits and economy to the other species of Noddies, from which it may be distinguished by its smaller size and whiter cap. Breeds in large colonies on islands and reefs throughout its range.

Nest.—An almost flat structure, composed of the leaves of the tree on which it is built, laid on one another, with a very slight addition of seaweed, and cemented together with the bird's excrement, giving the exterior, and especially the egg cavity, a white-washed appearance. Nests are placed as close together as possible on the branches of trees, at heights up to 50 feet from the ground; also on the ground in rare cases.

Egg.—One, either pure white, creamy, reddish, or buffy-white, over which are sparingly distributed irregular-shaped spots and blotches of purplish and purplish-grey and underlying markings of dull bluish-grey, the markings usually predominating on the larger end. Breeding-season: September to December (Australia).

29. Silver Gull *Larus novæ-hollandiæ* Stephens

Lār-us—Gk, *laros*, sea-bird: *novæ-hollandiæ*—of New Holland.

Distribution.—Australia generally, and Tasmania; occurs also in New Caledonia and New Zealand.

Notes.—Also called Red-legged Gull, Crimson-billed Gull, Jameson Gull, Mackerel Gull, Seagull, and Sea-pigeon. This species is plentiful throughout the year on our harbours, inlets, and coastal rivers, and at times it is observed in large flocks on lakes and rivers hundreds of miles inland. It feeds on almost anything, but its natural food consists principally of small fishes and other marine-life; it is also a notorious nest-robber, eating the eggs of other sea-birds. As a scavenger it is useful, helping in no small way to keep harbours and rivers clean by eating the scraps of waste food and offal thrown overboard from ships. Breeds in colonies, sometimes on headlands and occasionally on inland lakes, but mostly on small islands throughout its range.

Nest.—Usually a slight depression in the ground, lined more or less thickly with grass or dried seaweed; some nests are built externally of thin twigs and coarse grass, and lined with finer grasses, while others are compactly made and composed entirely of fine grasses.

Eggs.—Two or three, sometimes four or even five, varying considerably in the ground colour and distribution of the markings, a common type being pale green or brown, uniformly spotted and blotched with umber or dark olive-brown, and faint underlying markings of dull violet-grey. Breeding-season: October to January or February (Australia).

30. Pied Oyster-catcher *Hæmatopus ostralegus* Linné

Hæ-mat'-o-pus—Gk, *haimatos*, blood; Gk, *pous*, foot: *os-tral'-eg-us*—Gk, *ostreon*, oyster; Gk, *legein*, to gather.

Distribution.—Australia generally, and Tasmania; occurs also in Europe, northern Africa, and Asia to the Moluccas, New Guinea, Aru Islands, and New Zealand.

Notes.—Also called White-breasted Oyster-catcher, Black-and-white Oyster-catcher, Seapie, Olive, Redbill, and Torea. Usually singly or in pairs, occasionally in small parties of from four to eight, frequenting sea-shores. It prefers shores with stones and reef outcrops, where it obtains most of its food, consisting chiefly of small molluscs, crustaceans, and other marine animals. Being a sociable bird, it is often seen in the company of other shore-roving species, such as Curlews and Sandpipers; it is exceptionally wary.

Nest.—A depression in the sand; generally on the shore, above high-water mark.

Eggs.—Two, pale stone-colour or brownish-white, covered with irregular-shaped spots, blotches, and short streaks of blackish-brown and umber and underlying markings of inky-grey; the colour, shape, and distribution of the markings vary considerably. Breeding-season: October to January (southern Australia); July to September (north-western Australia).

31. Sooty Oyster-catcher *Hæmatopus unicolor* Forster

ū'-ni-col-or—L., *unicolor*, of one colour.

Distribution.—Australia generally, and Tasmania; occurs also in New Zealand.

Notes.—Also called Black Oyster-catcher, Redbill, and Torea-pango. Usually singly or in pairs, frequenting chiefly rocky shores, islands, and reefs. It is similar in habits and economy to the Pied Oyster-catcher, but is even more wary than that species.

Nest.—A shallow depression in the sand, lined with pieces of herbage, dried grass, seaweed, fragments of coral, or broken shells. It generally breeds on islands and reefs, often on a grass-covered ledge, some height above the water.

Eggs.—Two, rarely three, pale yellow-stone or pale brown, covered with irregular-shaped spots, blotches, and short streaks of blackish-brown or dull black, and a few underlying markings of light brown and inky-grey. Breeding-season: October to January.

32. Reef Heron *Demigretta sacra* Gmelin

Dem-i-gret'-ta = *demi*—*egretta*—Fr., *demi*, half, (L., *dimidius*); N.L., *egretta*, egret: *sā'-cra*—L., *sacer*, sacred.

Distribution.—Australia generally, Tasmania, and New Zealand; occurs also in India to Japan and Malaysia to Oceania.

Notes.—Also called Sacred Heron, Blue Heron, and White Heron. There are two plumage phases of this species, one being dark slaty-grey, the other white; the two forms interbreed. The dark phase appears to be the only form frequenting the coasts and islands of southern Australia and Tasmania; the white-plumaged bird being found in the tropical regions. It is generally met with singly or in pairs, frequenting rocky coasts, islands, and reefs. When not stalking among the rocks at low tide for food, it squats in a most dejected-looking attitude on a rock. Food: small fishes, molluscs, crustaceans, and other marine animals.

Nest.—A platform of sticks, placed either on a rock or in the branches of a low bushy tree.

Eggs.—Two or three, occasionally four, pale bluish-white. Breeding-season: September and October to January, but practically throughout the year.

PLATE XXXVI

BIRDS OF THE OCEAN AND SEASHORE

1. Crested Penguin *Eudyptes cristatus* Miller

Eu-dyp'-tes—L., *eu*, well, good; L., *dyptes*, diver: *cris-ta'-tus*—*cristatus*, crested.

Distribution.—Sub-Antarctic seas to southern Australia, Tasmania, and New Zealand.

Notes.—Also called Rock-hopper Penguin and Tufted Jackass Penguin. There are only a few records of the occurrence of this species in Australian seas. It breeds in colonies on Prince Edward, Marion, the Crozet, Kerguelen, St Paul, Campbell, and Antipodes Islands. Food: cuttle-fish and crustaceans, procured by diving.

Nest.—None made.

Eggs.—Two, bluish-white. Breeding-season: September to December.

2. Thick-billed Penguin *Eudyptes pachyrhynchus* Gray

pach-y-rhynch'-us—Gk, *pachys*, thick; Gk, *rhynchos*, beak.

Distribution.—New Zealand to southern Australia and Tasmania.

Notes.—Also called Victoria Penguin and Big-crested Penguin. This species breeds on the coast of New Zealand and on Stewart Island and Snares Island. The Australian records are few, the most important being an immature bird collected at Ettalong Beach, New South Wales. Food: fish, cuttle-fish, and crustaceans.

Nest.—None made.

Eggs.—One or two, pale green, with a coating of lime. Breeding-season: September to December.

3. Little Penguin *Eudyptula minor* Forster

Eu-dyp'-tu-la—L., *eu*, well, good; L., *dyptes*, diver: *mi'-nor*—L., *minor*, smaller.

Distribution.—Southern and eastern Australia (from Fremantle, Western Australia, to Moreton Bay, Queensland), and Tasmania; also occurs in New Zealand.

Notes.—Also called Little Blue Penguin, Blue Penguin, and Fairy Penguin. Usually seen on our coasts from September to March, where it takes up its quarters in well-established rookeries extending along the

coast and on many islands. Its quickness in swimming, diving, and turning, when pursuing food, is marvellous. When disturbed at its nest or when "sporting" in the water, it utters a sharp barking note. Food: fish, cuttle-fish, and crustaceans.

Nest.—A little dry grass or sea-weeds placed in cavities between rocks, in a hollow scraped out underneath tussock grass or other vegetation, or sometimes in a deserted burrow of a Petrel.

Eggs.—Two, occasionally three, dull white. Breeding-season: September to March.

4. Wandering Albatross *Diomedea exulans* Linné

Dī-o-mē-dē'-a—from Diomede, a Trojan war hero: *ex'-u-lans*—L., *exulans*, wandering.

Distribution.—Southern oceans, chiefly between latitudes 60°S. and 30°S., occasionally ranging northwards to the tropic of Capricorn.

Notes.—Also called Man-o'-war Bird, Cape Sheep, and Toroa. Usually seen following in the wake of a ship, and occasionally in harbours and bays during stormy weather. Its flight is remarkable as well as graceful, there being no apparent motion of the wings as it glides and circles with effortless ease. Food: cuttle-fish, fish, and other marine animals, as well as galley-refuse from ships. Breeds in colonies on Tristan da Cunha, South Georgia, and Gough, Auckland, and Antipodes Islands.

Nest.—A large cone-shaped structure, composed of earth and grass cemented together with excreta; placed on the ground.

Egg.—White, but mostly nest-stained, the surface being rough and lustreless. Breeding-season: December to February.

5. Snowy Albatross *Diomedea chionoptera* Salvin

chi-on-op'-ter-a—Gk, *chion*, snow; Gk, *pteron*, wing.

Distribution.—The southern seas of Australia, Tasmania, and Africa, between latitudes 60°S. and 30°S.

Notes.—This species is similar in habits and economy to the Wandering Albatross, but may be distinguished by its lighter coloration generally, especially its white tail. Breeds on Marion, Prince Edward, the Crozet, and Kerguelen Islands.

Nest.—A large, bowl-shaped structure, composed of earth and grass, cemented together with excreta; placed on the ground.

Egg.—Chalky-white, the surface being coarse and lustreless. Breeding-season: January and February.

6. Black-browed Albatross *Diomedea melanophrys* Temminck

mel-an-oph'-ris—Gk, *melas* (*melanos*), black; Gk, *phrys* (*phrus*), brow.

Distribution.—The southern seas of Australia and Tasmania; occurs generally in the southern oceans between latitudes 60°S. and 20°S.

Notes.—Also called Black-browed Mollymawk and Mollymawk. This

is the commonest Albatross off the eastern coast of Australia; it is often seen following ships and is particularly noticeable near trawlers. It is similar in habits and economy to the Wandering Albatross, but easily distinguished by its darker coloration and smaller size. Breeds on South Georgia, and Falkland, Kerguelen, Auckland, Campbell, and Ildefonso Islands.

Nest.—A large, cone-shaped structure, composed of mud mixed with vegetable materials; lined with finer substances; placed on the ground.

Egg.—Dull white, with a zone of reddish-brown specks and blotches on the larger end. Breeding-season: November to January.

7. Yellow-nosed Albatross *Diomedea chlororhyncha* Gmelin
chlor-o-rhynch'-a—Gk, *chloros*, yellow-green; Gk, *rhynchos*, beak.

Distribution.—The eastern, southern, and western seas of Australia, and Tasmania; occurs generally in the southern oceans, chiefly between latitudes 50°S. and 20°S.

Notes.—Also called Yellow-nosed Mollymawk. Its range is more northern than that of its congeners, which it resembles in habits and economy. Breeds on Tristan da Cunha, and Gough, the Crozet, and St Paul Islands.

Nest.—A cylindrical shaped structure composed of tufts of grass, clay and sedge, with a shallow concavity on top, and is built on the ground. The nest is neat and round and measures fourteen inches in diameter and ten inches in height (Mosely).

Egg.—White, faintly marked with reddish spots, the surface being slightly lustrous (Mosely).

8. Grey-headed Albatross *Diomedea chrysostoma* Forster
chrys-o-stom'-a—Gk, *chrysos*, golden; Gk, *stoma*, mouth.

Distribution.—The southern seas of Australia, and Tasmania; occurs generally in the southern oceans, between latitudes 50°S. and 30°S.

Notes.—Also called Gould's Yellow-nosed Mollymawk and Flat-billed Mollymawk. This species is rare in Australian seas, and is very difficult to distinguish from the Yellow-nosed Albatross. Its range is more southerly than that of the Yellow-nosed Albatross, which it resembles in habits and economy. Breeds on Diego Ramirez Islands, Cape Horn, South Georgia, and Kerguelen and Campbell Islands.

Nest.—Not recorded.

Eggs.—Not recorded.

9. White-capped Albatross *Diomedea cauta* Gould
cāūt'-a—L., *cautus*, shy.

Distribution.—The southern seas of Australia, and Tasmania; occurs generally in the southern Indian and Pacific Oceans from South Africa to South America.



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Notes.—Also called Shy Albatross and Shy Mollymawk. This species is well named, for it rarely comes near a ship. It may be distinguished from the other dark-backed species in having the under-surface of the wings white, except at the tips. Apart from being shy, it resembles the other Albatrosses in habits and economy. Breeds on Albatross Island (Bass Strait), also on Pyramid Rock and the Chatham and Bounty Islands.

Nest.—A flat, bowl-shaped structure, composed of soil and excrement mixed with roots and grasses; placed on the ground.

Egg.—Dull white or creamy-white, freckled or capped, more or less, with reddish-brown surface markings on the larger end; some eggs are almost devoid of markings. The surface is coarse-grained and minutely pitted all over and is almost lustreless. Breeding-season: August to October.

10. Sooty Albatross *Phæbetria fusca* Hilsenberg

Phæ-bē'-tri-a—Gk, *phoibetria*, prophetess: *fus'-ca*—L., *fuscus*, brown.

Distribution.—The southern seas of Australia, and Tasmania; occurs generally in the southern oceans from latitude 30°S. to the Antarctic Circle.

Notes.—A common bird in Australian seas, and often confused with the young of the Wandering Albatross, but may be distinguished by its smaller size and wedge-shaped tail. It is similar in habits and economy to the other Albatrosses. Breeds on Tristan da Cunha and Gough Island.

Nest.—A small and low crater-shaped structure composed of grass and mud; usually built on cliffs or projecting rocks and placed separately.

Egg.—White with a slight greyish tint, covered all over with minute specks of reddish-brown; usually the specks become larger and thicker about the larger end, occasionally forming a zone (Cromer).

11. Grey-mantled Albatross *Phæbetria palpebrata* Forster

pal-pe-bra'-ta—L., *palpebratus*, marked around the eye.

Distribution.—The southern seas of Australia, and Tasmania; occurs generally from latitude 33°S. to the Antarctic Circle.

Notes.—Also called Light-mantled Albatross. This species is only a casual visitor to Australian seas, and may be distinguished from the Sooty Albatross by its grey back and under-parts. It resembles the Sooty Albatross in habits and economy, but its range is more southern than that species. Breeds on South Georgia, and Kerguelen, Antipodes, Auckland, Campbell, and Macquarie Islands.

Nest.—Placed in crevices in rocks.

Egg.—Whitish, covered round the larger end with very small reddish-brown spots, which merge together at the apex. Breeding-season: October to January.

12. Red-tailed Tropic-bird *Phaëthon rubricaudus* Boddaert

Phā'-ëth-on—Gk, *phaëthon*, shining: *ru-bri-cāūd'-us*—L., *ruber*, red; L., *cauda*, tail.

Distribution.—Tropical Indian and Pacific Oceans, from Madagascar and the Mauritius to the Galapagos Islands, and from the Bonin and Hawaiian Islands to Australia and the Kermadec Islands.

Notes.—Also called Red-tailed Bos'n-bird. This species is only a straggler to the south-eastern coast, but is common on Norfolk, Lord Howe, and Raine Islands. It may be distinguished from the smaller White-tailed Tropic-bird by the two long red streamers in its tail. Breeds on the Mauritius and Christmas Islands, on islands off the north-western coast of Australia, and on Raine Island; also on Lord Howe, Norfolk, the Society, Palmerston, Bonin, and Hawaiian Islands.

Nest.—A depression in the ground, sheltered by a bush or rock; sometimes on a ledge or in a crevice of a rocky cliff.

Egg.—Dull white or pale pinkish-red, almost obscured by minute freckles, spots, or smudges of pinkish-red to blackish-brown, intermingled with larger underlying markings of purplish-grey, the darker markings being frequently confined to the larger end, where often a zone is formed. Breeding-season: September to March (Lord Howe Island, and Phillip Island off Norfolk Island); practically throughout the year elsewhere.

13. White-tailed Tropic-bird *Phaëthon lepturus* Daudin

lep-tūr'-us—Gk, *leptos*, delicate; Gk, *oura*, tail.

Distribution.—Tropical seas.

Notes.—Also called White-tailed Bos'n-bird. A rare straggler to the coasts of northern and eastern Australia. The most southern record is an immature bird collected at Botany Bay, New South Wales. Breeds on numerous islands throughout the tropical seas.

Nest.—A depression in sand on the floor of a crevice in a rocky cliff.

Egg.—Buff, freckled all over with purplish-brown markings. Breeding-season: December to September.

14. Greater Frigate-bird *Fregata minor* Gmelin

Frē-ga'-ta—latinized from Fr. *frigate*, a frigate: *mī'-nor*—L., minor, smaller.

Distribution.—The seas of northern and southern Australia; occurs generally in the tropical Indian and Pacific Oceans.

Notes.—Also called Great Frigate-bird, Man-o'-war Hawk, and Sea-hawk. Usually seen soaring over the sea or circling an island, often so high in the air as to appear a mere speck against the sky. Its flight is remarkably swift and graceful, and it remains on the wing practically throughout the whole day. This species procures its food from the surface of the water, or by compelling Terns, Gannets, and other sea-birds to disgorge their prey, which it adroitly catches. Food: young

turtles, fish, cuttle-fish, and small crustaceans. Breeds in colonies on South Trinidad, Seychelle, Aldabra, and Christmas Islands, Paracel Reefs (South China Sea), and the Hawaiian and Galapagos Islands.

Nest.—A rather bulky structure, composed of sticks, grass, and other herbage, placed on the ground or on top of a small bush.

Egg.—White, covered with creamy lime. Breeding-season: March to July.

15. Lesser Frigate-bird *Fregata ariel* Gray

ariel—ariel, a fairy; Gk, *aerios*, airy.

Distribution.—The seas of north-western, northern, north-eastern, and southern Australia; occurs in the tropical oceans generally.

Notes.—Also called Man-o'-war Hawk and Sea-hawk. It is similar in habits and economy to the Greater Frigate-bird, from which it may be distinguished by its smaller size and white flanks. Breeds on Raine Island, also on South Trinidad, Bedout, and Aldabra Islands.

Nest.—Usually a rather bulky structure, composed of small sticks, grass, and other herbage, placed on the ground or on top of a low bush.

Eggs.—One, occasionally two, white, with a slight coating of lime. Breeding-season: April to July.

16. Dark Southern Skua *Catharacta lonnbergi* Mathews

Cath-a-ract'-a—from Gk, *catarrhactes* or *catarractes*, bird of prey: *lonnbergi*—E. Lonnberg, Scandinavian scientist.

Distribution.—Southern oceans and sub-Antarctic islands, to southern Australia and Tasmania.

Notes.—Also called Dark Skua and Robber Gull. A rare visitor to our shores, and then chiefly during the winter months. It is generally seen among flocks of Gulls and Terns, which it attacks, forcing them to give up any food they may have secured. Among sea-birds it is analogous to the birds of prey; it feeds on small mammals, insects, eggs, young birds, fish, carrion, and animal refuse. Breeds on South Georgia, the South Orkneys, Kerguelen Island, the South Island of New Zealand, and Chatham, Auckland, Campbell, and Macquarie Islands.

Nest.—A shallow depression in the ground, slightly lined with grass and weeds.

Eggs.—Two, glossy dark stone, heavily marked with blotches of brown, and a few dark markings round the middle. Breeding-season: November to January.

17. Arctic Skua *Stercorarius parasiticus* Linné

Ster-co-rā'-ri-us—L., *stercorarius*, dungy: *par-a-sī-tic-us*—Gk, *parasiticus*, feeding on another.

Distribution.—Arctic seas, migrating southwards to South America, South Africa, Australia, Tasmania, and New Zealand.

Notes.—Also called Richardson's Skua, Long-tailed Jaeger, Sea-pirate, Parasite Gull, Robber Gull, and Teaser. Usually arrives in the southern hemisphere during October or November, departing about February or March. It is similar in habits and economy to the Dark Southern Skua. Besides the bird figured, there is a light phase, differing in having the sides of the head and neck straw-yellow, chin and breast dull white, and the remainder of the under-parts ash-brown. Breeds on Commander and Aleutian Islands, and in Alaska, Canada, Greenland, Scotland, northern Europe, and Siberia.

Nest.—A shallow depression in the ground, slightly lined with grass or moss.

Eggs.—Two, dark stone to greenish-buff, spotted, chiefly at the larger end, with very dark brown to light grey markings; other eggs have large irregular-shaped markings of light brown. Breeding-season: May to July.

18. Brown Gannet *Sula leucogaster* Boddaert

Sū'-la—Gk, *sulan*, to plunder: *lēūc-o-gas'-ter*—Gk, *leucos*, white; Gk, *gaster*, belly.

Distribution.—Seas of north-western, northern, and north-eastern Australia, to the tropic of Capricorn; occurs generally in the tropical oceans.

Notes.—Also called Brown Booby. Usually in small parties or large flocks, generally flying with a direct, steady flight rather close to the surface of the water. Its food consists of fish, which it obtains by diving from the air and then pursuing them under water. This species not uncommonly dives from a height of 60 feet or more. Breeds in colonies on several islands of the Great Barrier Reef, on Bunker, Raine, Darnley, and Bedout Islands, Ellis Island (Gulf of Carpentaria), and also on islands in the Gulf of Mexico, Caribbean Sea, and tropical Atlantic, Indian, and Pacific Oceans.

Nest.—A depression in soil or sand, around which is placed any material near at hand, such as pieces of coral and seaweed, and added to as incubation proceeds.

Eggs.—Two, bluish-white, with a coating of lime. Breeding-season: from July probably to December or later.

19. Red-footed Gannet *Sula sula* Linné

sū'-la—Gk, *sulan*, to plunder.

Distribution.—Seas of north-eastern Australia; occurs in the tropical seas (except the Pacific coast of South America).

Notes.—Also called Red-legged Gannet and Red-footed Booby. It is similar in habits and economy to the Brown Gannet. Breeds in colonies on Raine Island, also on islands in the Caribbean Sea, on Ascension and South Trinidad Islands, and on many islands in the Indian Ocean and western and central Pacific Ocean.

Nest.—A substantial platform of interwoven sticks, with a shallow depression in the centre; generally placed in a shrubby bush, well off the ground.

Egg.—Pale greenish or bluish-white, with a coating of lime; generally nest-stained and scratched by the feet and toes of the sitting bird. Breeding-season: May and July to September.

20. Australian Gannet *Sula serrator* Gray

ser-rā'-tor—L., *serrator*, sawyer.

Distribution.—Coast of Australia (south of Fremantle, Western Australia, and Brisbane, Queensland), Tasmania, and New Zealand.

Notes.—Also called Takupu. A fairly common species off the coasts. Similar in habits and economy to the other species of Gannets. Breeds in colonies on islands in Bass Strait, off Tasmania, on Lawrence Rock (off Portland, Victoria), and on the North Island of New Zealand.

Nest.—Usually a well-built structure, composed of kelp, twigs, grass, and other plants, placed on a flat cone-shaped mound of earth and guano.

Eggs.—One or two, pale bluish-white, thickly coated with lime; generally nest-stained and scratched by the feet and toes of the sitting bird. Breeding-season: July to January.

21. Masked Gannet *Sula dactylatra* Lesson

dac-ty-lā'-tra—Gk, *dactylon*, finger; L., *atra*, black.

Distribution.—Seas of north-western, northern, and north-eastern Australia; occurs generally in the tropical seas.

Notes.—Also called Masked Booby and Blue-faced Booby. It is similar in habits and economy to the other species of Gannets. Breeds in colonies on Bedout, Adele, and Raine Islands off the Australian coasts, on Lord Howe and Norfolk Islands, and also on isolated islands in the tropical oceans.

Nest.—A depression in the sand or earth, around which twigs, grass, or weeds are strewn, and added to as incubation proceeds.

Eggs.—Usually two, pale bluish-white, more or less covered with lime. Although two eggs are laid, usually only one young one is reared. Breeding-season: July to December, or later according to the season and the locality.

22. Wedge-tailed Shearwater *Puffinus pacificus* Gmelin

Puff'-in-us—N.L., *puffinus*, puffin: *pacificus*—of the Pacific Ocean.

Distribution.—The western and eastern coasts of Australia; occurs generally throughout the tropical and semi-tropical Indian and Pacific Oceans.

Notes.—Also called Wedge-tailed Petrel and Wedge-tailed Muttonbird. Arrives in immense flocks along the coasts during September and November, and establishes itself in rookeries on islands lying off the mainland, especially along the Great Barrier Reef. Both sexes take part in incubation, one remaining silently in the burrow all day, while its mate ranges the ocean for food, which consists of small fish and squids, crusta-

ceans, and other floating or surface-living animals, and also scraps from ships. Although a silent place during the day, throughout the night a rookery is noisy with the cries, shrieks, and wails of the birds. Breeds on many islands elsewhere in the Pacific Ocean, and in the Indian Ocean.

Nest.—In a hollow at the end of a burrow or in a natural cavity; lined with a few pieces of grass or feathers.

Egg.—White. Breeding-season: November to March (southern hemisphere); May to August (northern hemisphere).

23. Short-tailed Shearwater *Puffinus tenuirostris* Temminck
ten-u-i-ros'-tris—L., *tenuis*, slender; L., *rostrum*, bill.

Distribution.—Bass Strait, the coasts of Tasmania, southern and south-eastern Australia, and New Zealand, and the Pacific Ocean to the Sea of Okhotsk and Bering Sea.

Notes.—Also called Mutton-bird, Seal-bird, Whale-bird, Sooty Shearwater, Bonaparte's Shearwater, and Slender-billed Petrel. Arrives in immense flocks off our coasts during November, where it takes up its quarters in old-established rookeries on islands in Bass Strait, and on the coasts of Victoria, South Australia, and Tasmania. It is similar in habits and economy to the Wedge-tailed Shearwater. In Bass Strait its eggs and young form the main support of the islanders. Also breeds on the Bounty Islands.

Nest.—In a hollow at the end of a burrow, lined with grass or feathers.

Egg.—White. Breeding-season: November to March.

24. Sooty Shearwater *Puffinus griseus* Gmelin
gris'-e-us—L., *griseus*, grey.

Distribution.—The coasts of New South Wales, New Zealand, and South America, and the Pacific and Atlantic Oceans, to Kamchatka, Alaska, Labrador, Greenland, and The Faeroes.

Notes.—Also called Mutton-bird and Sombre Shearwater. A rare visitor to the coast of New South Wales. Similar in habits and economy to the other Shearwaters. Breeds in colonies on the South Island of New Zealand, and on Stewart, the Snares, Chatham, and Auckland Islands; also in the Andes of northern Chile, on islands off Cape Horn, and on the Falkland Islands. There is one breeding record from Broughton Island.

Nest.—In a hollow at the end of a burrow, lined with grass or feathers.

Egg.—White. Breeding-season: November to April.

25. Fleishy-footed Shearwater *Puffinus carneipes* Gould
car'-ne-i-pēs—L., *carneus*, fleshy; L., *pēs* (*pedis*), foot.

Distribution.—The coasts of South-western and southern Australia, and Tasmania, Lord Howe Island, the North Island of New Zealand, the eastern Indian Ocean, and Pacific Ocean to Japan and California.

Notes.—Also called Mutton-bird, Pale-footed Shearwater, and Fleshy-footed Petrel. Usually arrives off our coasts during September or November. Similar in habits and economy to the other Shearwaters. Breeds in colonies on islands off the south coast of Western Australia, on Lord Howe Island, and the North Island of New Zealand.

Nest.—In a hollow at the end of a long burrow, lined with pieces of weeds, grass, or feathers.

Egg.—White. Breeding-season: November to March.

26. Silver-grey Petrel *Priocella antarctica* Stephens

Pri-o-cell'-a—compound of *prion*, a saw, and *procella*, storm: *antarctica*—of the Antarctic.

Distribution.—Southern oceans, from Antarctica north to St Helena, New Zealand, and Peru; accidental to Victoria and Tasmania.

Notes.—There are only a few records of the occurrence of this species in Australian seas, and little has been published concerning its habits. Breeds on Cape Hunter (Stillwell Island, Antarctica).

Nest.—On ledges of cliffs.

Egg.—White. Breeding-season: November and December.

27. Grey Petrel *Procellaria cinerea* Gmelin

Pro-cell-ār'-i-a—L., *procella*, storm; Gk, *laros*, sea-bird: *cin-er'-e-a*—L., *cinereus*, ashen.

Distribution.—Southern oceans from about latitude 55°S. to about 30°S. and on the western coast of South America to Peru; not uncommon off the coasts of southern Australia, Tasmania, and New Zealand.

Notes.—Also called Brown Petrel. Gould collected specimens of this Petrel between Hobart and Sydney. Practically nothing has been recorded of its habits and economy. Breeds on Gough, Kerguelen, Macquarie, and Antipodes Islands.

Nest.—In a large chamber at the end of a burrow.

Egg.—White. Breeding-season: November to April; October to December (Macquarie Island).

28. Giant Petrel *Macronectes giganteus* Gmelin

Mac-ro-nēc'-tes—Gk, *macros*, large; Gk, *nectes*, swimmer: *gi'-gan-tē'-us*—L., *giganteus*, giant.

Distribution.—Southern oceans, from the Antarctic Continent to the tropic of Capricorn, ranging farther north to the western coast of South America.

Notes.—Also called Giant Fulmar, Mother Carey's Goose, Nelly, Stinker, and Glutton. This species is fairly common in the seas of southern Australia; it may be distinguished from the dark Albatrosses by its stouter form, shorter wings, and large pale bill. Its flight is not so graceful and buoyant as that of an Albatross, being more laboured and

flapping in character. Most of its food, which is procured from the surface of the water, consists of fish, squids, crustaceans, and other marine-life, also refuse from ships. This Petrel is a scavenger, it also kills and devours other sea-birds. There is a white phase of this species which is practically confined to the neighbourhood of the Antarctic Circle. Breeds on the South Shetlands, South Orkneys, and South Georgia, Falkland Islands, Tristan da Cunha, and the Gough, Prince Edward, Marion, the Crozet, Kerguelen, Macquarie, and Heard Islands, and the sub-Antarctic islands of New Zealand.

Nest.—A hollowed, cone-shaped structure, composed of earth and excreta.

Egg.—White. Breeding-season: September to January.

29. Pacific Gull *Gabianus pacificus* Latham

Gab-i-ā'-nus—N.L., *gabianus*, gull: *pacificus*—of the Pacific Ocean.

Distribution.—Tasmania and southern Australia, from Shark Bay (Western Australia) to Rockhampton (Queensland).

Notes.—Usually singly or in pairs, frequenting chiefly the seas of South Australia, Victoria and Tasmania, and the larger islands of Bass Strait, being rather rare in Western Australia, New South Wales, and Queensland. It is a true scavenger and also a notorious egg robber. Most of its food is procured from the surface of the water, and consists of fish and marine animals, also galley-refuse from ships. Breeds on islands in Bass Strait and headlands of Tasmania. Immature birds are brown, the feathers being mottled with pale edges.

Nest.—A depression in the ground, neatly lined with grass or other herbage; generally situated in the shelter of a tussock of grass or a low bush.

Eggs.—One to three, varying from pale olive or grey to pale olive-brown, blotched all over with reddish-brown and lavender markings. Breeding-season: September to January.

APPENDIX



BIRDS INTRODUCED AND ESTABLISHED IN AUSTRALIA

1. Indian Turtle-dove *Streptopelia suratensis* Gmelin

Distribution.—Afghanistan, India, and Ceylon.

Description.—Head, grey; back and wings, brown; hind-neck and sides of neck, black with white spots; tail-feathers, blackish, all but the centre pair tipped with white; throat, whitish; remainder of under-parts, cinnamon. Length about 13 inches.

Notes.—Also called Spotted Dove. A common bird in parks and gardens of cities and suburbs of the coastal areas, and is gradually extending its range inland. It is a destructive bird in gardens. Food: seeds, buds, and young shoots of plants.

2. Red-whiskered Bulbul *Otocompsa emeria* Linnæus

Distribution.—India, China, Malay Peninsula, and the Mauritius.

Description.—Forehead, crown of head and crest, front of cheeks and bill, black; patch behind the eye, pale crimson; back, wings, and tail, brown; cheeks and underparts, white, with an incomplete black band on the chest, and washed with pale brown on the sides of neck, and abdomen; under tail-coverts, pinkish-red. Length about 7 inches.

Notes.—Also called Red-vented Bulbul and Top-knot. This serious pest is unfortunately becoming very common in parks, gardens, and orchards of Sydney and suburbs, and is gradually establishing itself in Melbourne. Food: insects and their larvæ, seeds, fruits, and the buds and young shoots of plants.

3. Black-bird *Turdus merula* Linnæus

Distribution.—Europe, northern Africa, Egypt, Syria, Persia, and the Azores.

Description.—Adult male: uniform glossy black; bill, orange-yellow. Female: dark brown above; under-parts, rufous-brown streaked with blackish-brown; bill, brown. Length about 10 inches.

Notes.—This beautiful songster is extremely common in the parks, gardens, and surrounding districts of Melbourne and Adelaide. It is gradually extending its range northwards and inland. Food: insects and their larvæ, snails, and fruits. Occasionally destructive in gardens.

4. Song-thrush *Turdus philomelos* Brehm

Distribution.—Europe, western Asia, and India.

Description.—Dark olive-brown above; breast and sides of body, yellowish streaked and spotted with blackish-brown; remainder of under-parts, white. Length about 9 inches.

Notes.—Also called Continental Song-thrush. This fine songster has firmly established itself in Victoria and South Australia, where it is fairly common in parks, gardens and orchards. Food: insects and their larvæ, snails, and worms.

5. Skylark *Alauda arvensis* Linnæus

Distribution.—Europe and northern Africa.

Description.—Golden-brown above, with blackish centres to the feathers, light streak over the eye, and white edges to the outermost tail-feathers; under-parts, buffy-white, spotted and streaked with blackish-brown on the throat, breast, and flanks. The female is slightly smaller than the male. Length about 7 inches.

Notes.—This famous songster is firmly established throughout the grass-lands of the coastal areas of southern and south-eastern Australia. Food: insects and their larvæ, and seeds.

6. Greenfinch *Chloris chloris* Linnæus

Distribution.—Europe to Persia.

Description.—Olive-green; yellowish forehead and rump; under-parts greenish-yellow, darker on the flanks. The female is much duller, and slightly smaller than the male. Length about 6 inches.

Notes.—Also called Green Linnet. This finch is fairly well distributed over the settled areas of southern and south-eastern Australia, where its pretty song is often heard in parks, gardens, and orchards. Food: seeds.

7. Goldfinch *Carduelis carduelis* Linnæus

Distribution.—Europe, Canary Islands to Egypt, Persia, and Siberia.

Description.—Forehead, front of face, and chin, crimson; crown of head, lores, and feathers behind the cheeks, black; back, greyish copper-brown; wings, black with yellow markings; tail-feathers, black, the centre ones tipped with white; feathers behind the eye, throat, and remainder of under-parts, white. Length about 5 inches.

Notes.—Also called Thistle-finch. A well-established species throughout the grass-lands and cultivated areas of south-eastern Queensland, eastern New South Wales, and southern Australia. Food: seeds and insects.

8. Tree-sparrow *Passer montanus* Linnæus

Distribution.—Europe and northern Asia.

Description.—This species is like the House-sparrow but slightly smaller in size. Chestnut crown and nape, white-bordered triangular black

patch on the cheeks, a second white bar across the wing. The sexes are alike. Length about 5 inches.

Notes.—This Sparrow is by no means common. Found chiefly in the cultivated and cleared areas of Southern New South Wales and Victoria. Food: seeds and insects.

9. House-sparrow *Passer domesticus* Linnæus

Distribution.—Europe to Siberia.

Description.—Male; crown, nape, and lower back, slate-grey, slightly washed with olive-green; back, brown; wings, brown with one white bar; chestnut band on side of neck; cheeks and throat, black; under-parts, whitish. The female is duller above and darker on the under-parts than the male, and is without black on the throat. Length about 5 inches.

Notes.—Also called Common Sparrow. The commonest bird throughout the cities, towns, and cultivated areas of Australia (except Western Australia). Food: insects and their larvæ, and seeds.

10. Starling *Sturnus vulgaris* Linnæus

Distribution.—Europe to Siberia.

Description.—Glossy black with metallic sheen; excepting the head and neck, the feathers of the upper-parts are tipped with buff, and those of the under-parts tipped with white. Young birds are greyish-brown. Length about 8 inches.

Notes.—This bird is extremely common throughout the settled portion of Australia. It does much damage to fruit and crops, but nevertheless destroys countless numbers of injurious insects. Food: insects and their larvæ, seeds, and fruits.

11. Common Myna *Acridotheres tristis* Linnæus

Distribution.—India and Afghanistan.

Description.—Head and neck, black; upper-parts, brown with large white patches on wings, and white tips to the tail-feathers; under-parts, rich vinous-brown; a large patch round the eye; bill and legs, yellow. Length about 10 inches.

Notes.—A fairly well-established species in Australia, chiefly in the coastal areas, where it keeps to the cities and towns. Food: insects and their larvæ, seeds, and fruit.

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